HNOLOGY DEPT.

# Gas Journal

VOL. 279 106TH YEAR. LONDON, JULY 21, 1954 NO. 4755. PRICE 1/3

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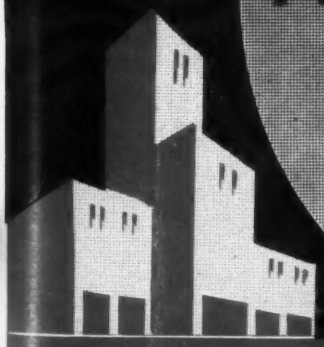

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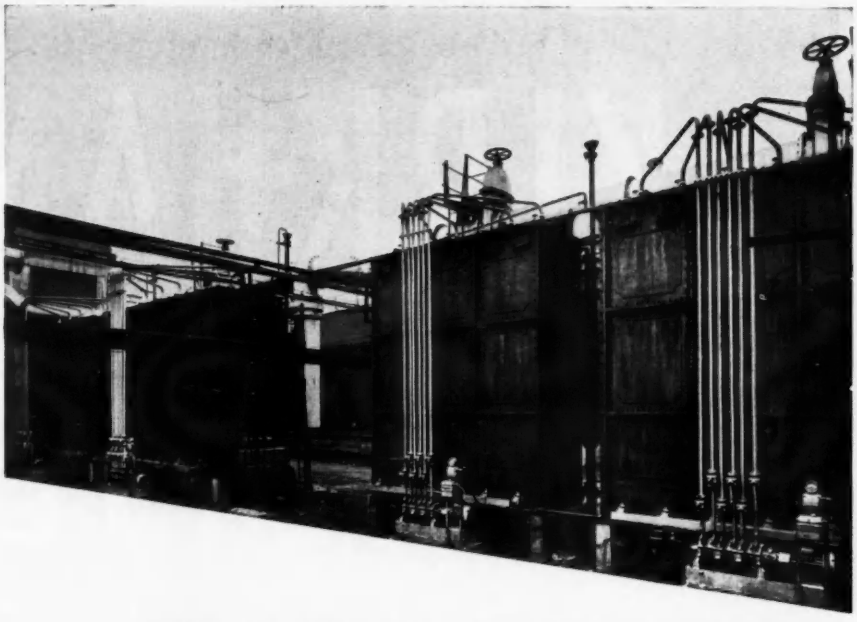

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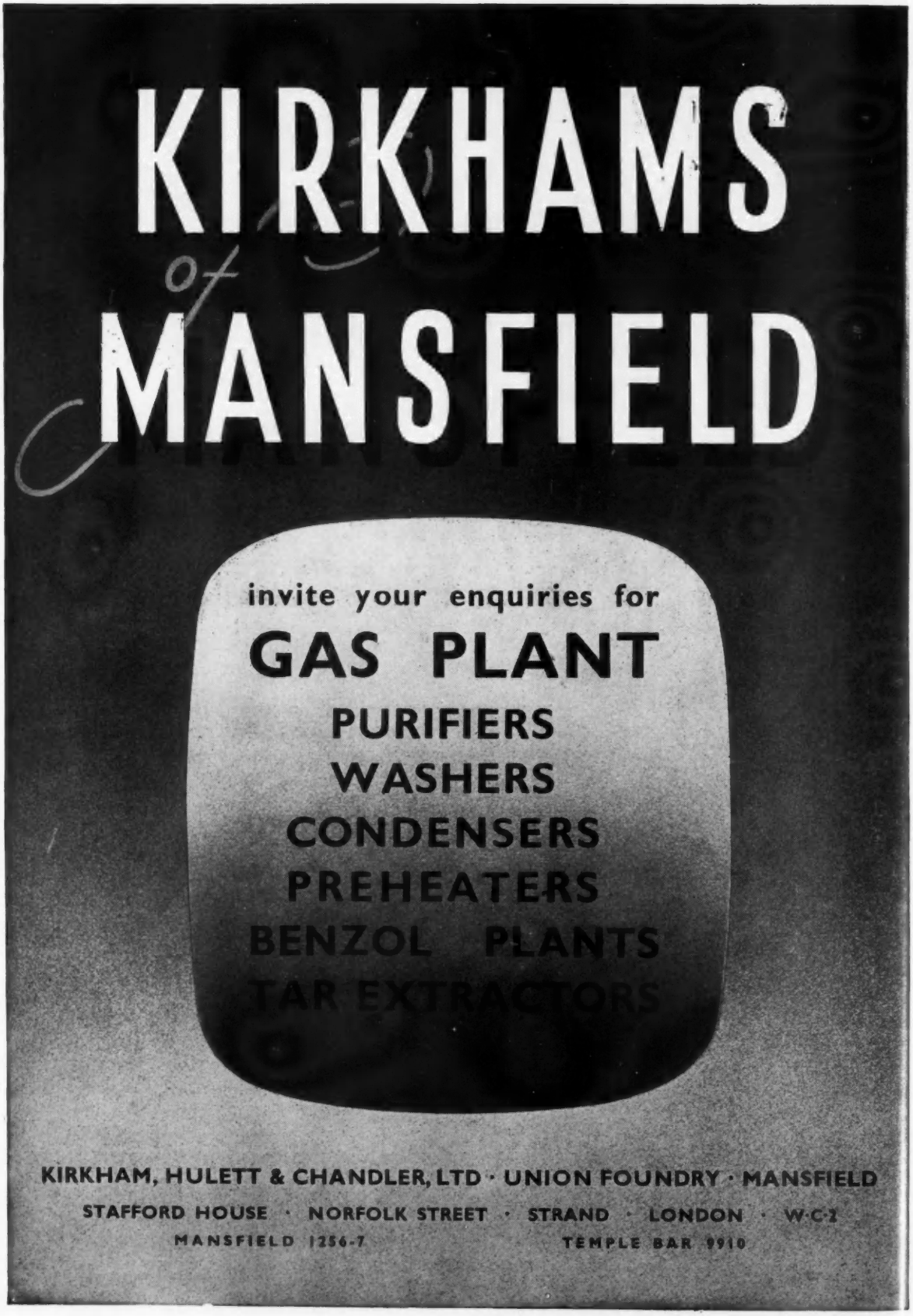
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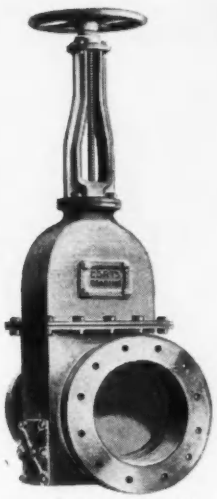
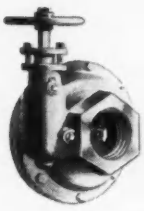


DOUBLE GATE

TOWNDROW ROTARY



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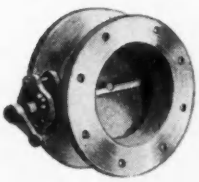

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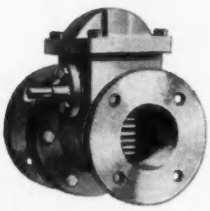
LIQUOR



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18

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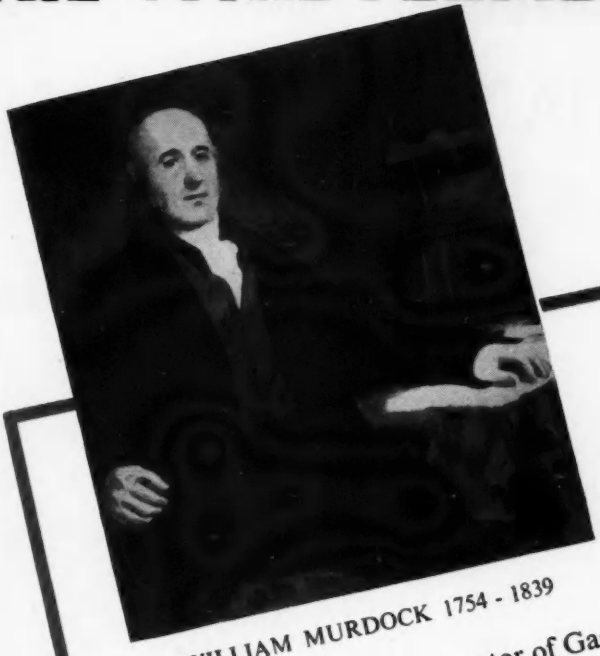
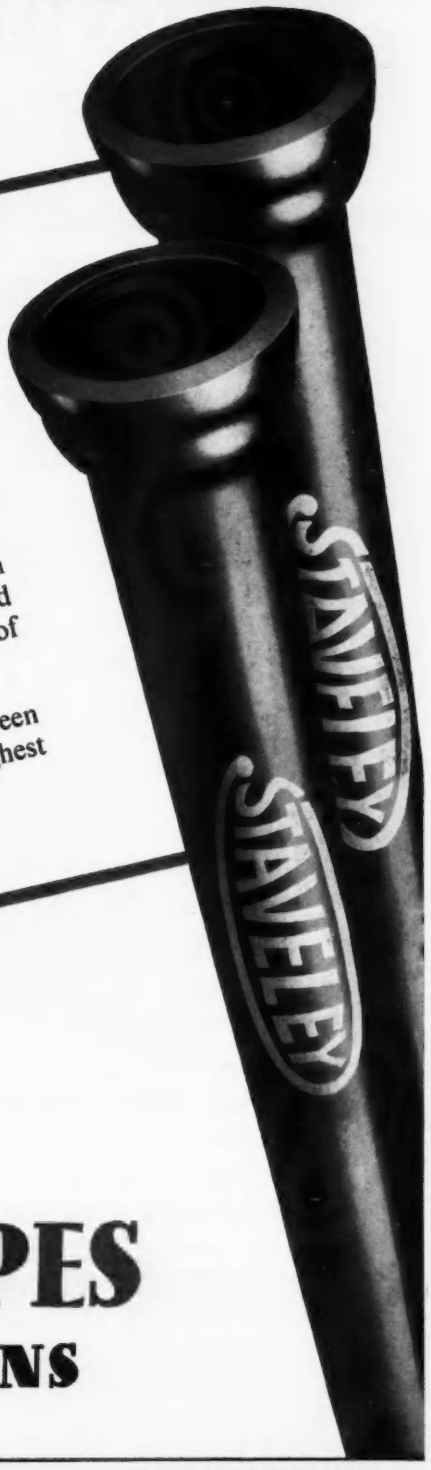


WILLIAM MURDOCK 1754 - 1839

Undoubtedly the "inventor of Gas lighting" and his work on the distillation of gas from coal and the practical use of that gas dominated the "gas industry" during the last 50 years of his lifetime.

For many years Staveley pipes have been recognised the world over as of the highest attainable standard for Gas mains.

*Photograph by courtesy of the Gas Council*

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THE STAVELEY IRON & CHEMICAL CO. LTD. NR. CHESTERFIELD

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## THE MODERN WAY

OXIDE HANDLING TRANSPORTER
WITH COVER LIFTING EQUIPMENT

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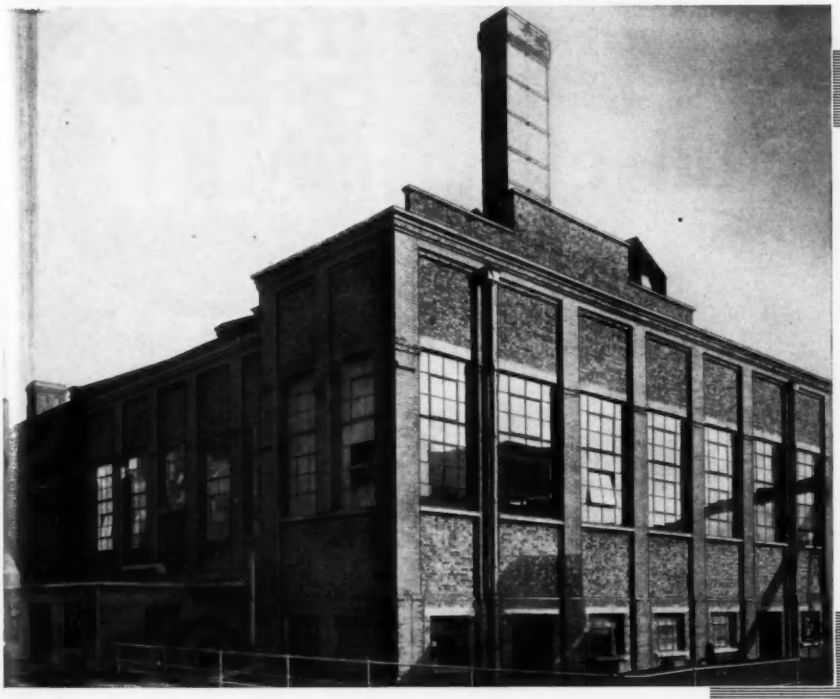

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*Manufacturers of : –*

- Complete range of refractory goods for gas retort settings and coke ovens in fireclay, silica and siliceous qualities.

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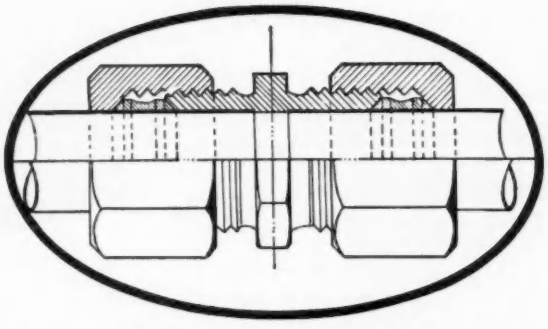
# Fyffe's fittings
## for speed and efficiency

'INSTANTOR'



Requires no preparation of the pipe—just screw up the nut.

Reduces fixing time to a minimum — joint made in less than a minute.

The patented double-interlock ring gives a positive grip on the pipe.

Can be disconnected and reassembled with ease and security.

In use for over 20 years. Millions in use in Britain alone.

# Fyffe's fittings
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Fyffe's manufacture a complete range of compression and capillary fittings in the "CONI-OR", "INSTANTOR" and "Intex P.T." patterns. For trouble-free service specify a Fyffe fitting.

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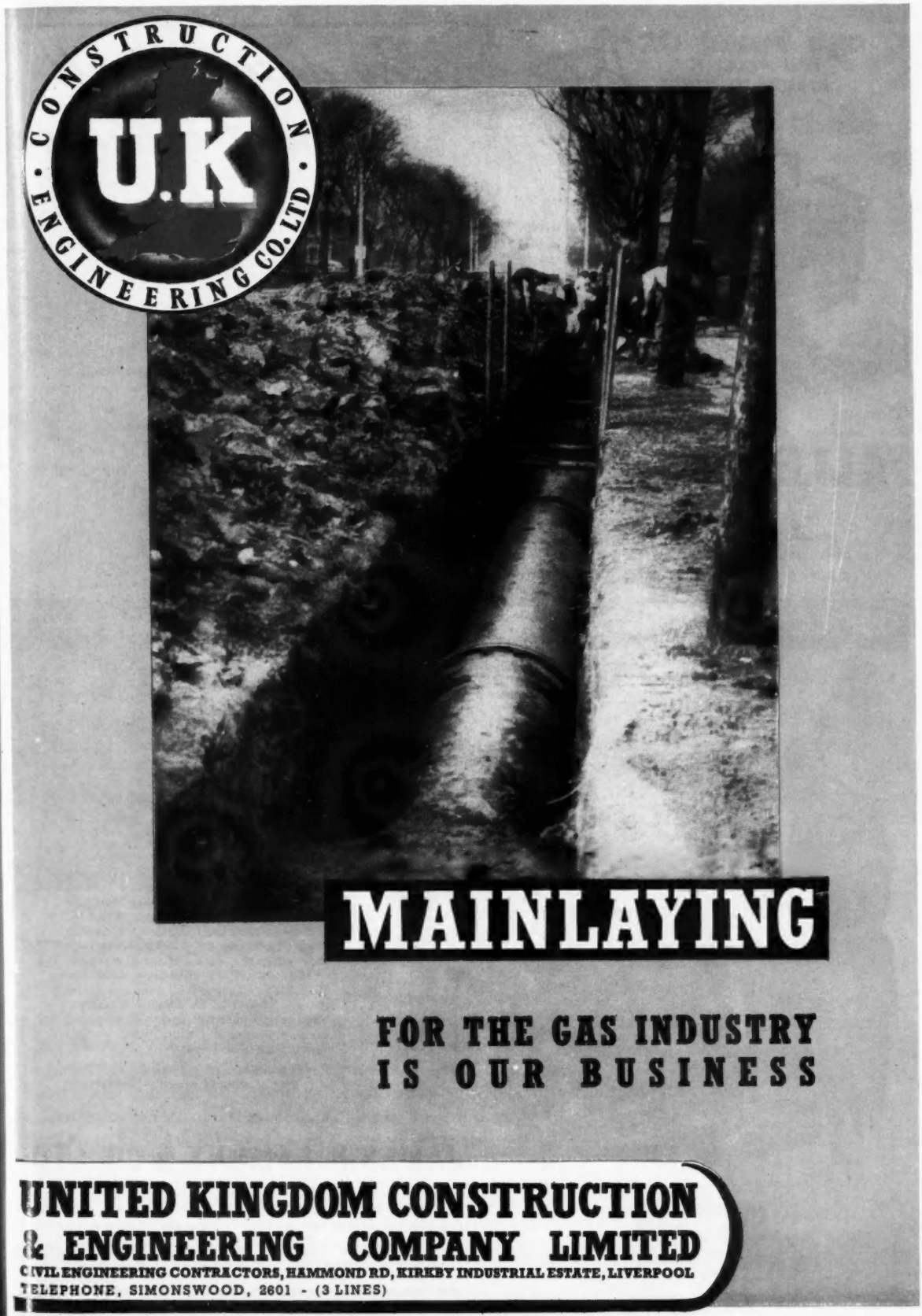
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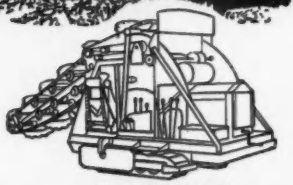

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## for Exceeding the Speed Limit!

"Fast work Mr. Leadbeater" said Robert as our Alf drew apologetically to a stop. "I had thought you were a bit of a speed merchant until I saw you at work this afternoon. Lucky the leakage came when the force was at full strength — that's when we knew you were our man. Still you made it all seem so simple, there is bound to be a reduced charge. Shall we go over to the station now and see if there are any more pipes we can fit with Securex Joints?"

For the perfect joint coupled with Copper Piping always specify "Securex."

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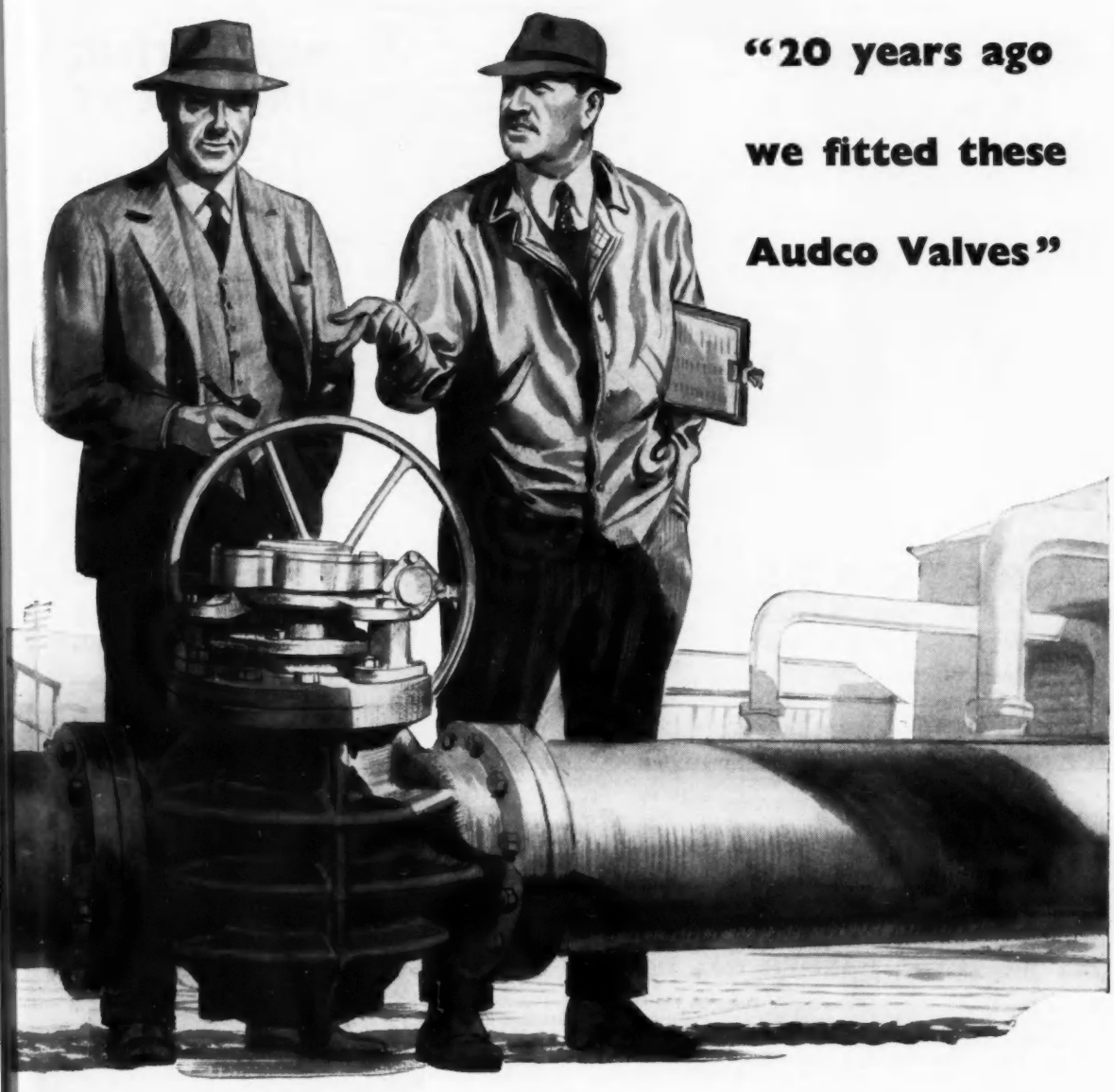

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**VALVES**

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AND OTHER HIGH
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THREE GRADES FOR USE
ON EITHER HOT FACE
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**RETORTS**
FIRECLAY AND SILICEOUS
WHOLEPIECE AND SEGMENTAL TO GAS ENGINEERS' SPECIFICATION
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36% TO 42% ALUMINA
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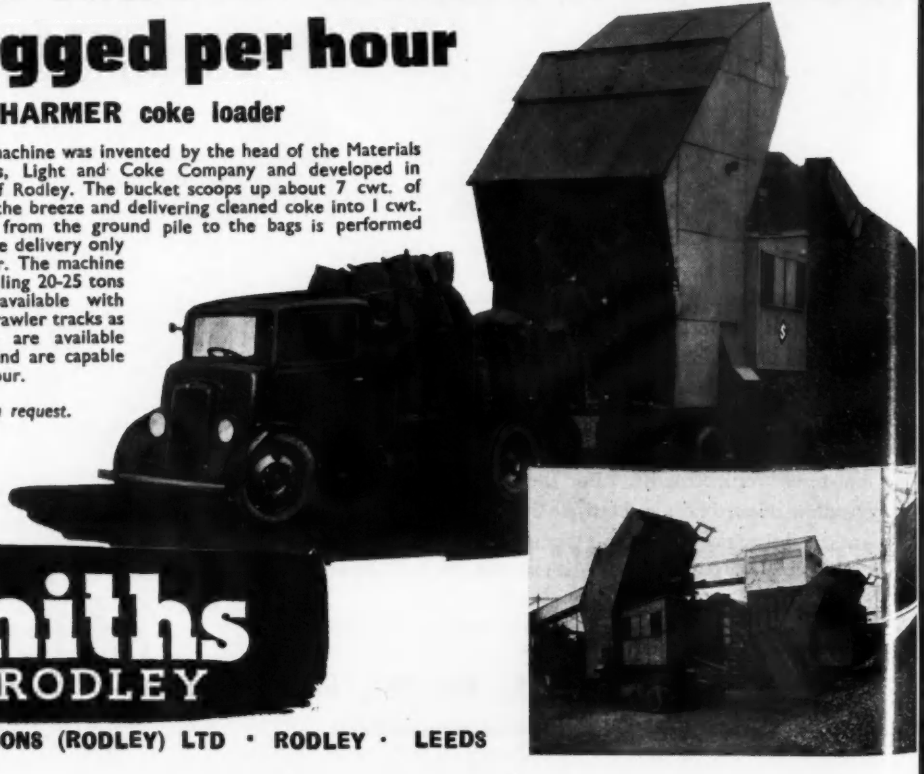
# 20 to 25 tons of coke de-breezed and bagged per hour

**with the SMITH HARMER coke loader**

This modern coke loading machine was invented by the head of the Materials Handling Dept. of the Gas, Light and Coke Company and developed in collaboration with Smiths of Rodley. The bucket scoops up about 7 cwt. of coke at a time, separating the breeze and delivering cleaned coke into 1 cwt. bags. The whole operation from the ground pile to the bags is performed as quickly and cheaply as the delivery only from a modern coke hopper. The machine illustrated is capable of handling 20-25 tons of coke per hour. It is available with either pneumatic tyres or crawler tracks as desired. Larger machines are available mounted on crawler tracks and are capable of handling 40-45 tons per hour.

*Illustrated leaflet available on request.*



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## makes gas distribution a one man job!

The district stations in the Southern Group of the Central Division, Southern Gas Board, are remotely controlled from a room at Aldershot. The remote control scheme has been designed jointly by Automatic Telephone & Electric Co. Ltd., who supplied the remote control equipment, and the Bryan Donkin Co. Ltd., who supplied the governors, valves, compressors etc. By means of a single pair of telephone wires to each district station, or to two district stations on a party line basis, e.g., Bordon and Alton, this equipment provides all the following facilities:

(*a*) Remote indication of pressure at inlet to volumetric governor.

(*b*) Remote indication of flow through volumetric governor into station.

(*c*) Remote control of flow into station.

(*d*) Remote indication of gasholder stocks, with audible and visible alarms for high and low limits.

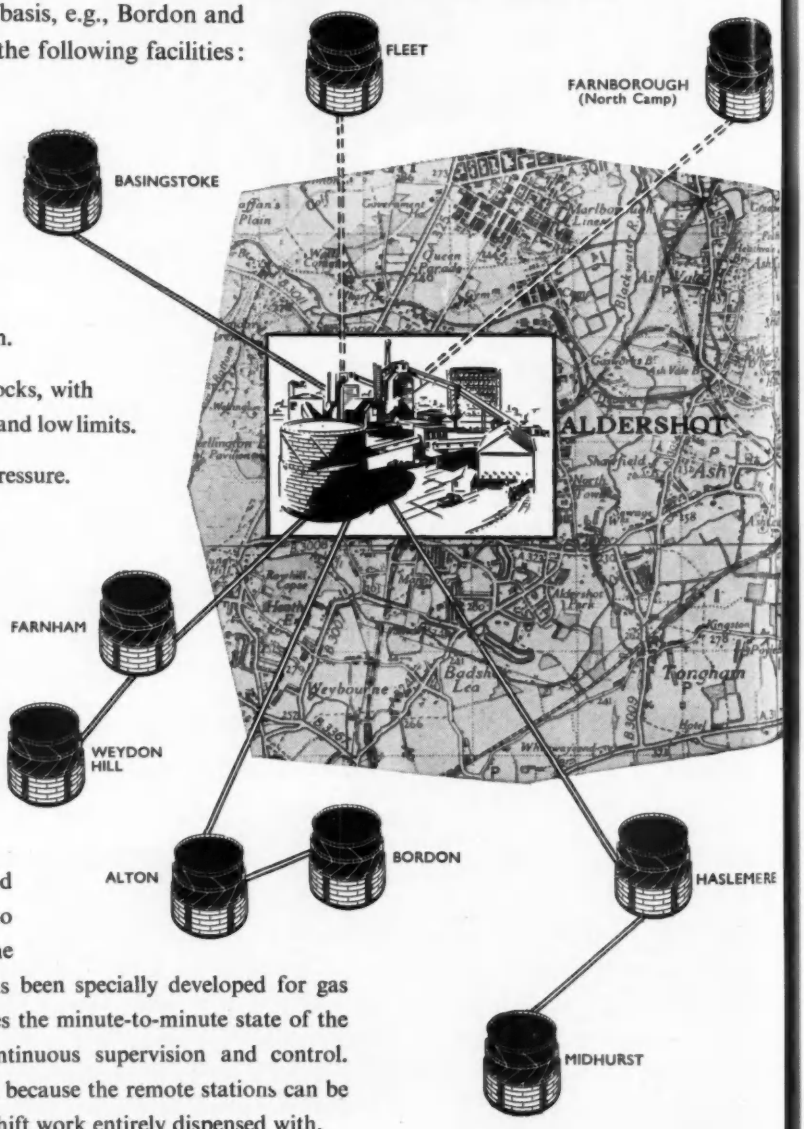
(*e*) Remote indication of the district pressure.

(*f*) Remote control (start/stop) and indication (running/stopped) of the station booster.

(*g*) Remote indication and alarm of electricity supply failure.

(*h*) Equipment testing facilities.

(*i*) Telephone communication.




Supervisory Remote Indication and Control Equipment can be applied to interlinked schemes of any size. The equipment employed at Aldershot has been specially developed for gas distribution control and its use enables the minute-to-minute state of the distribution system to be under continuous supervision and control. Saving of man-power is considerable, because the remote stations can be left unattended for long periods and shift work entirely dispensed with.

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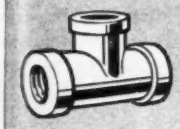
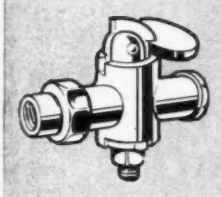
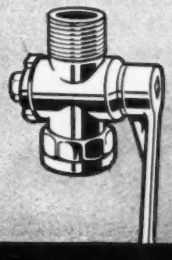
# EDGAR

## GAS FITTINGS & APPARATUS

*Famous for over Half a Century*



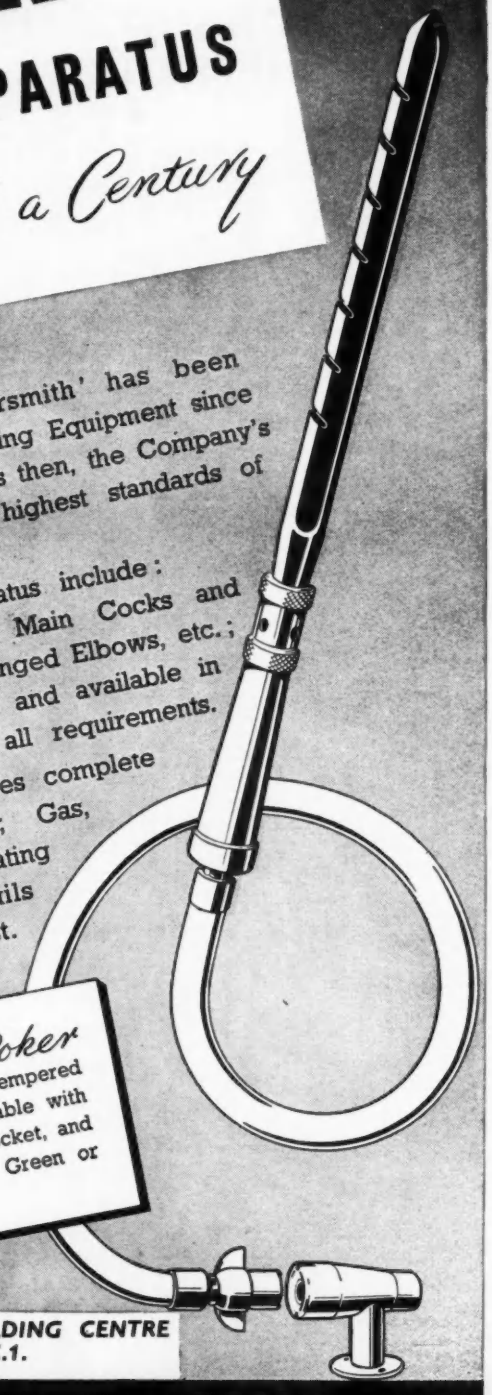




The name 'Edgar's of Hammersmith' has been famous for Gas Fittings and Lighting Equipment since the turn of the century. Today, as then, the Company's products ably contribute to the highest standards of gas efficiency.

Edgar Gas Fittings and Apparatus include: Flexible Plugs and Sockets; Main Cocks and Union Cocks; Equal Tees; Flanged Elbows, etc.; all made to B.S. specification and available in a complete range to meet all requirements.

Edgar's service also embraces complete Street Lighting Equipment; Gas, Hot Water and Central Heating Installations. Full details gladly given on request.



**EDGAR'S** *'38' Gas Poker* is a de luxe poker with specially tempered steel blade for long life. It is usable with British Standard Flex Plug and Socket, and is supplied with handles in Red, Green or Black Bakelite.

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use the STRONGEST, SAFEST METER LOCK

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- **DON'T** think only of the present time; look to the future
- **DO** remember that good quality is cheapest in the long run
- **DO** take our word for it that our workmanship is consistently good
- **DO** profit by others' experience and use M. & M. Locks to protect your meters

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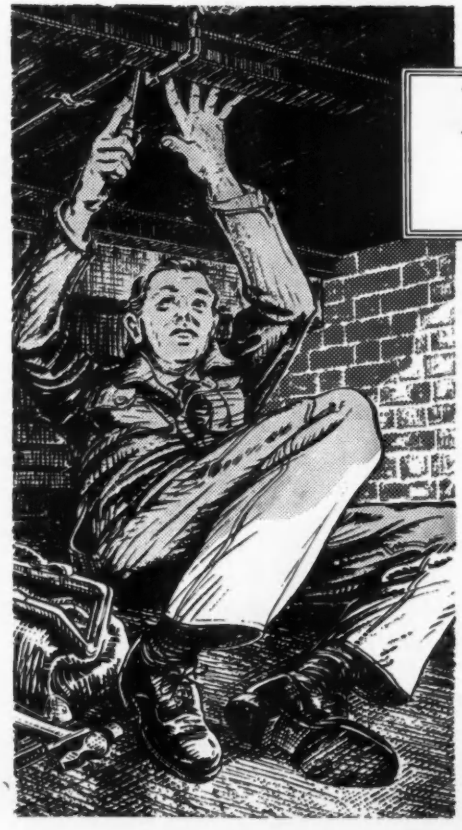

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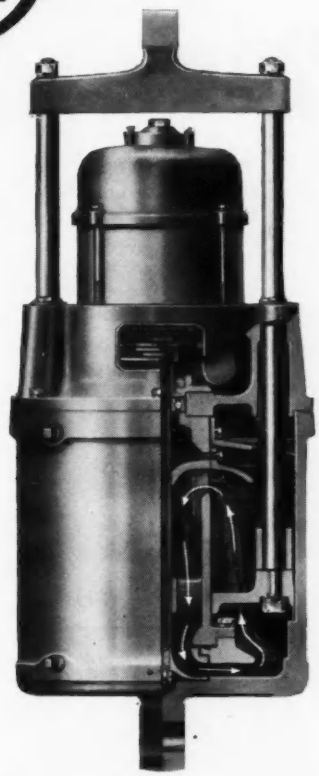

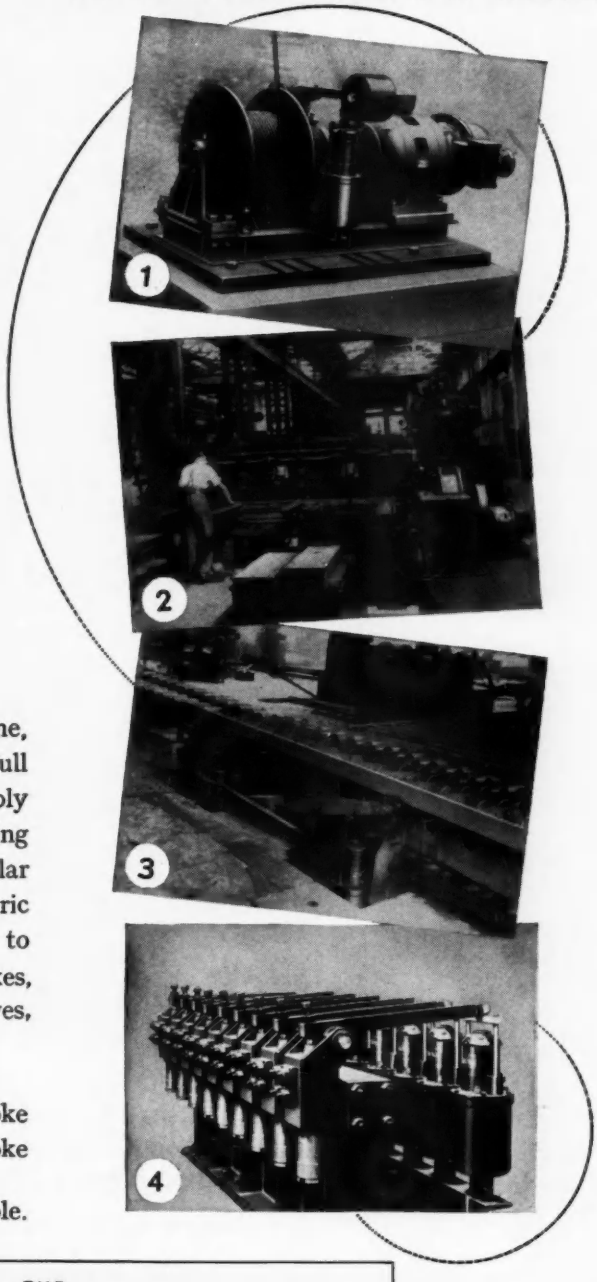


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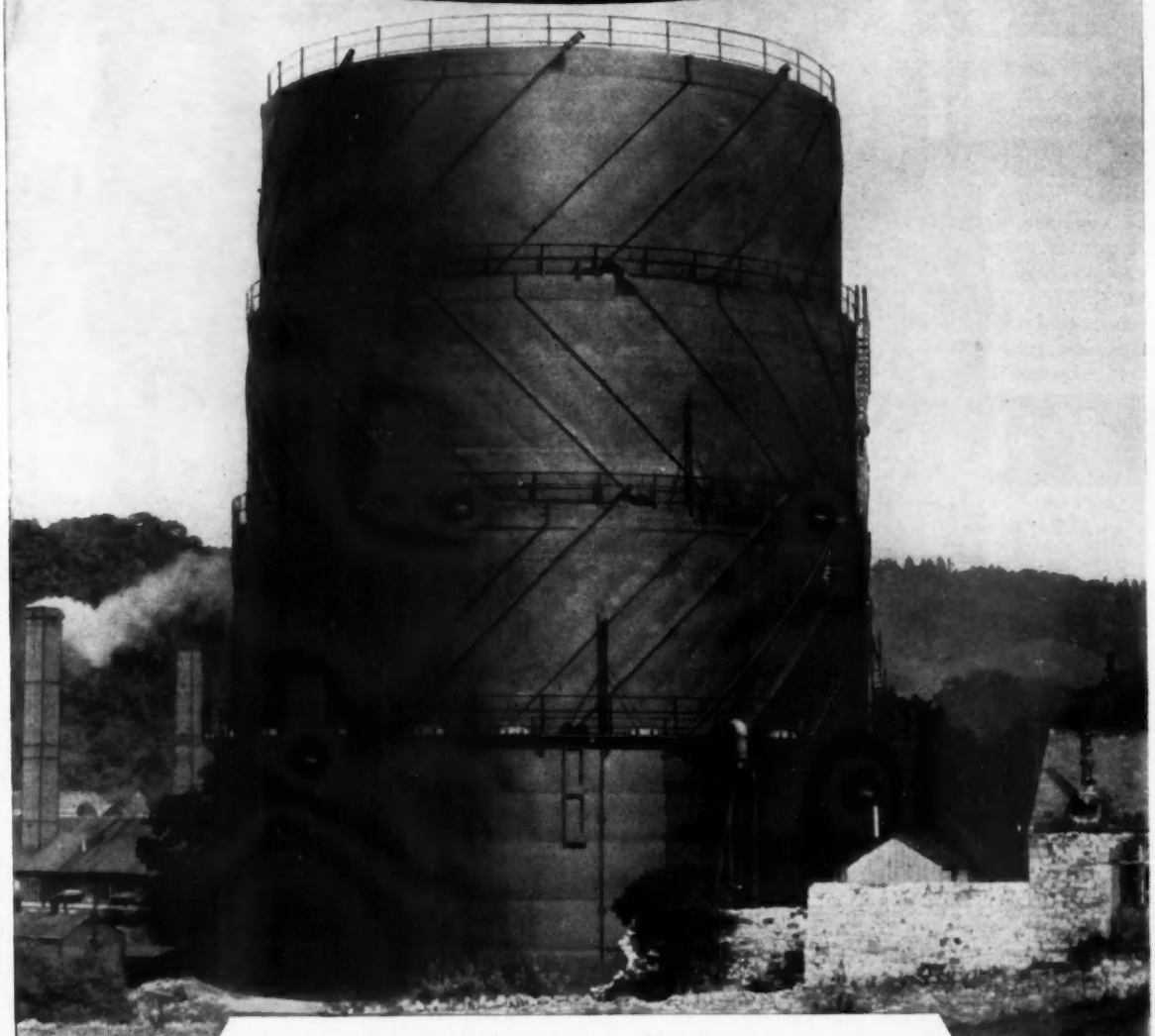
...at Bakewell



This all electrically welded Gasholder was recently completed for the East Midlands Gas Board at Bakewell, Derbyshire. It is a three lift spiral guided type in a steel tank. Capacity 250,000 cu. ft. Steel Tank 73′ 0″ dia x 26′ 6″ deep.

Photograph by Courtesy of East Midlands Gas Board

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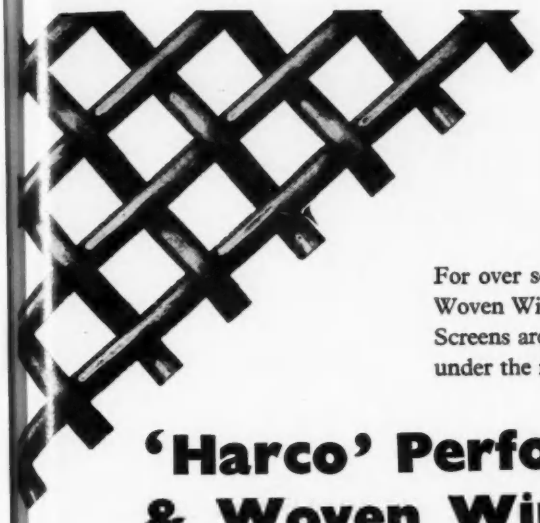

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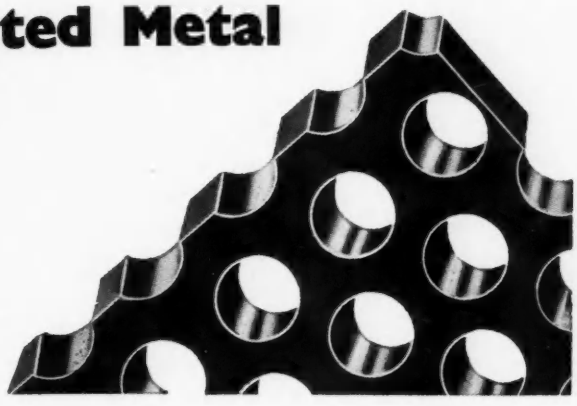

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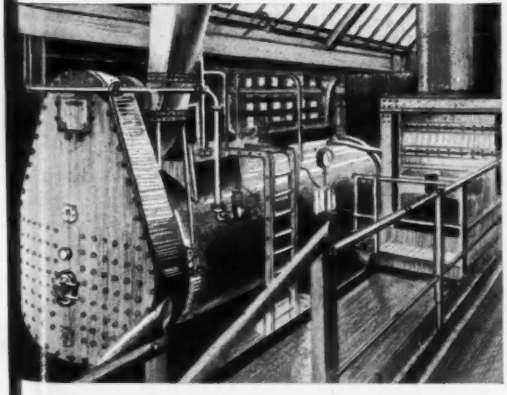

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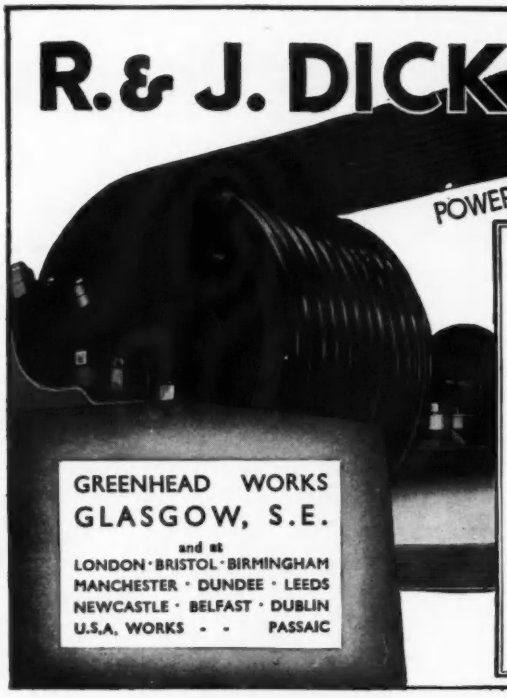

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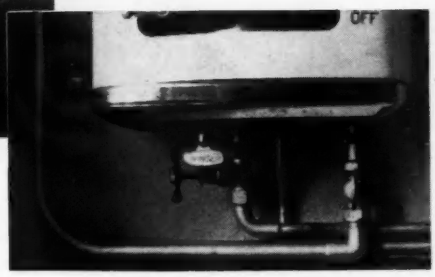


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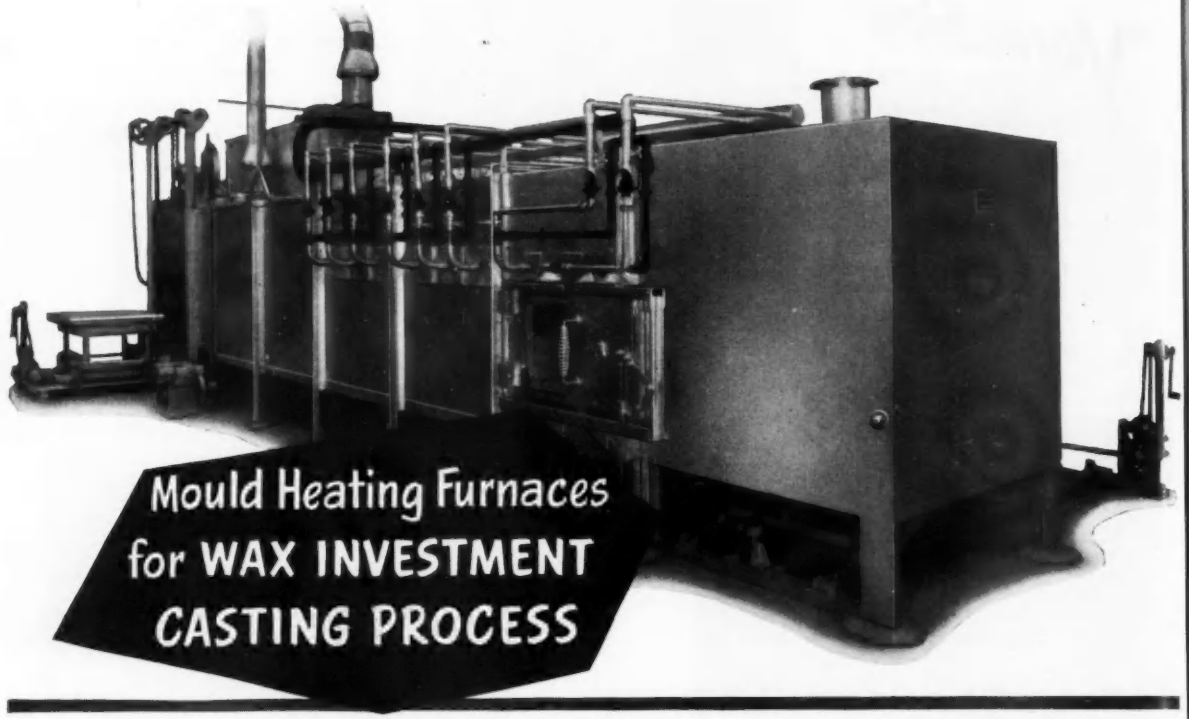


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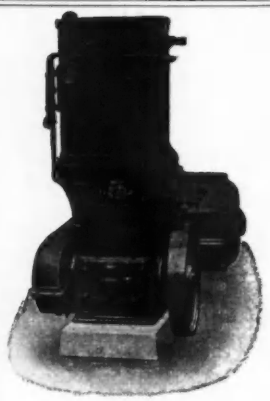

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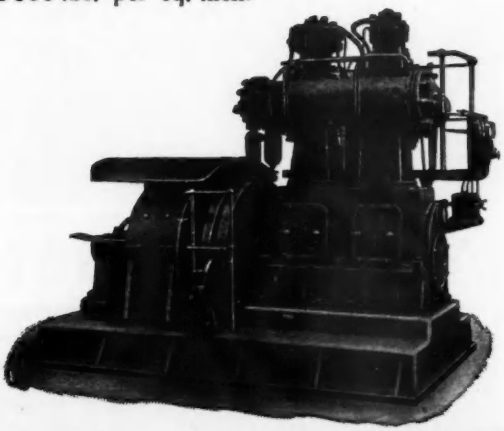

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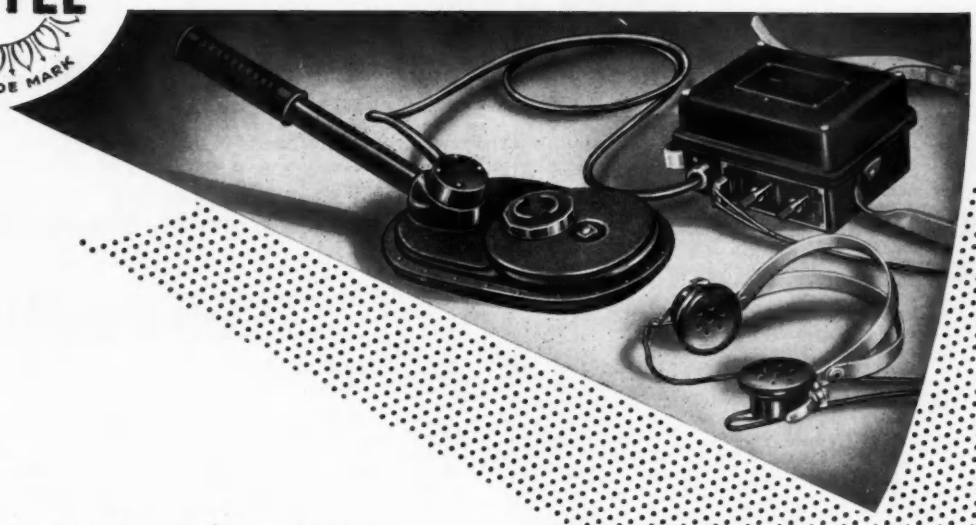

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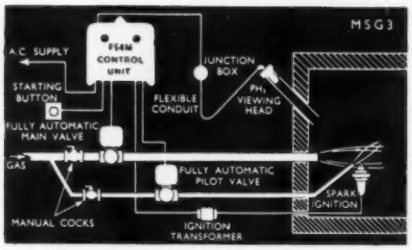


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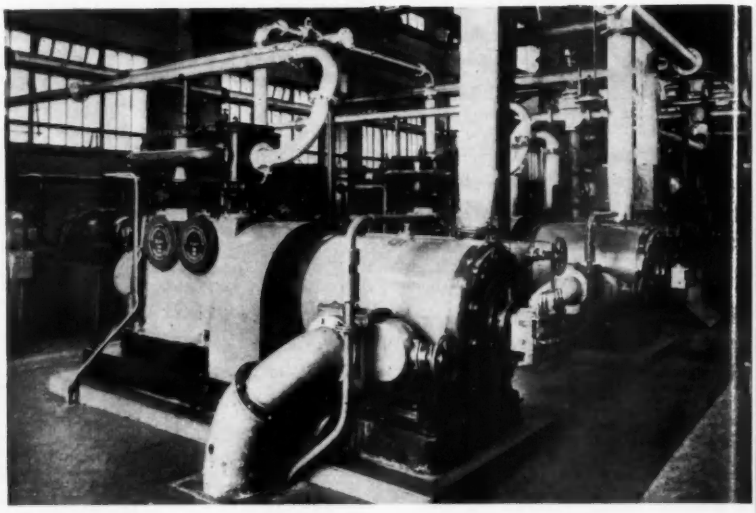

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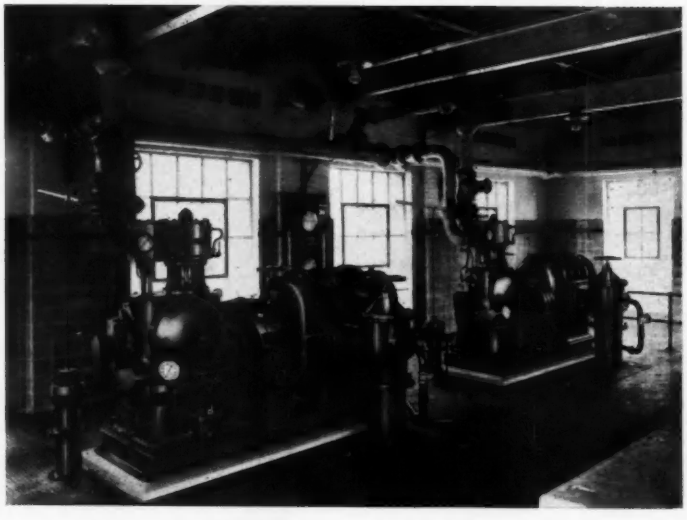

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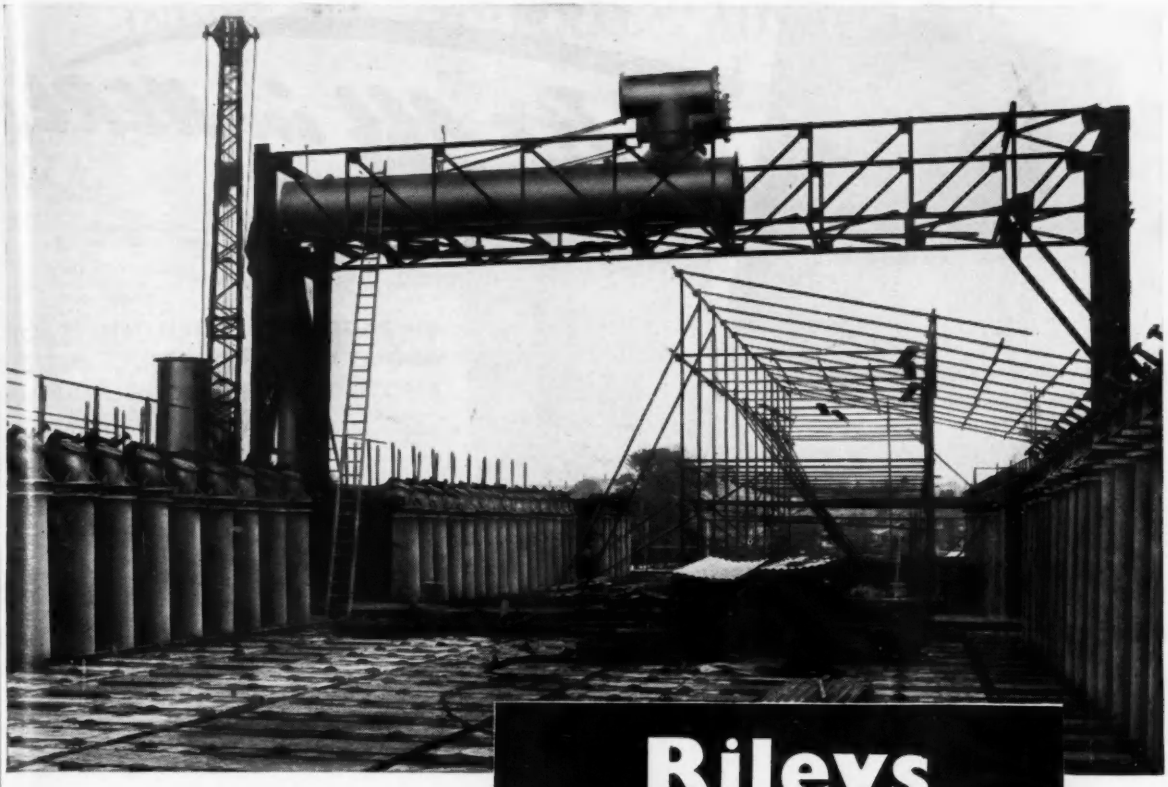

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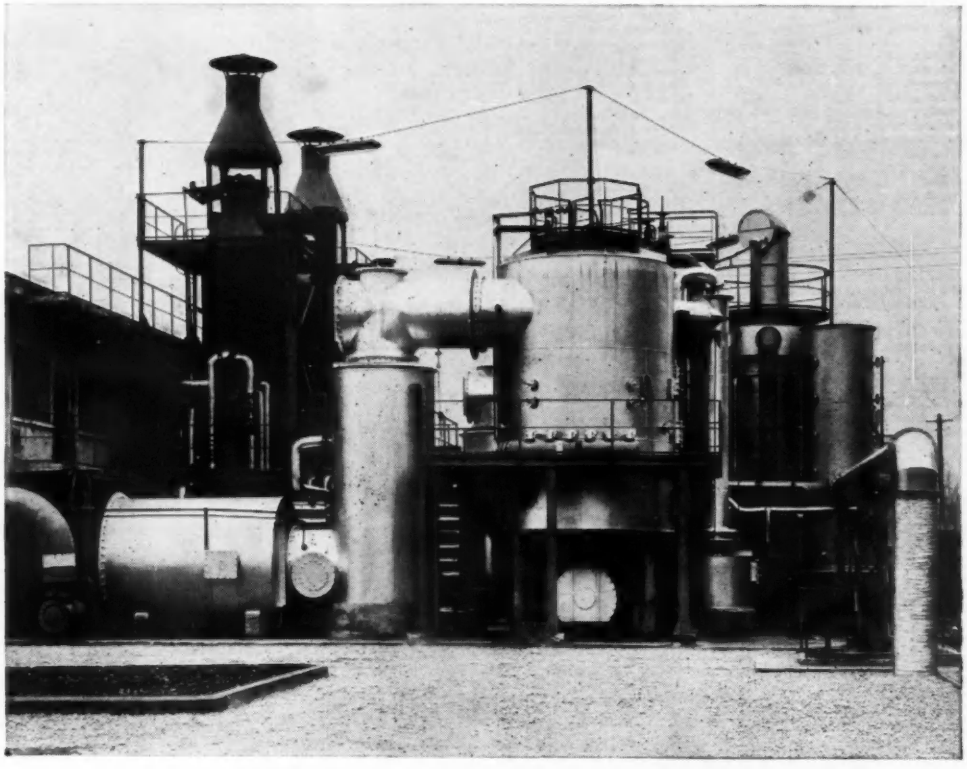

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106th YEAR OF PUBLICATION

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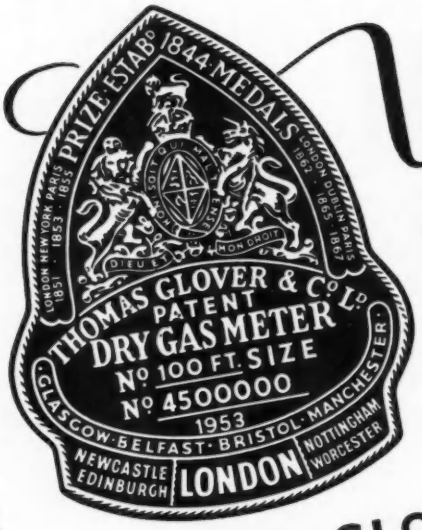


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(April June, 1954)
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# Gas Journal

VOL. 279. No. 4755 106TH YEAR July 21, 1954

## PROPOSED SELECT COMMITTEE

Nearly a year after the presentation of the report of a Select Committee of the House of Commons on methods by which Parliament might be kept informed of the affairs of the nationalised industries, and almost six months since the report was inconclusively debated, Mr. H. Crookshank, Lord Privy Seal, told the House of Commons on July 13 that the Government is to table a motion next session for the appointment of a Select Committee on the nationalised industries on the general basis recommended in the report presented last August. He had already announced in February that the Government accepted in principle the idea of a standing committee as recommended by the Select Committee, subject to any necessary detailed modifications and to consideration of the views expressed in debate, and on the understanding that the way was left open for a Joint Select Committee for the purpose if that should be eventually decided on. The Government has considered the views expressed on the matter from both sides of the House and is satisfied that there is a substantial body of support for the establishment of a Select Committee, and further, that there is no desire in 'another place' that the committee should be a Joint Select Committee of the two Houses.

The Committee's terms of reference provide that it should be designated the Committee on Nationalised Industries, and that it should be 'for examining the reports and accounts, and for obtaining further information as to the general policy and practices of the nationalised industries established by statute whose controlling boards are wholly appointed by Ministers of the Crown and whose annual receipts are not wholly or mainly derived from moneys provided by Parliament or advanced from the Exchequer.' The Government, the note continues, 'thinks it premature to create a Committee under Standing Order, but proposes in the first place to move next Session for a Committee under an *ad hoc* motion.' The Government considers that it would be inappropriate that the proposed committee should investigate matters which have been decided by the Minister concerned or clearly engage his responsibility and for which he should, therefore, be answerable on the floor of the House, or all matters (including questions of wages and conditions of employment) which are normally decided by collective bargaining arrangements. It also considers that the proposed committee should not concern itself with matters which fall to be considered through formal machinery established by the relevant statutes or with matters of day-to-day administration.

It is contemplated that the Committee should be limited to 14 members, five to constitute a quorum, with power to send for persons, papers and records. It 'should normally take evidence about the affairs of a nationalised industry from the chairman of the board of the industry concerned or a representative nominated by him. The witness might be accompanied by other representatives of the board where appropriate. Ministers should not normally be invited to appear before the Committee. The Committee should report from time to time and publish its evidence except where such publication might be held to be contrary to public interest. The staff of the Committee should not include an officer of the status of the Comptroller and Auditor General. It should have the assistance of liaison officers from the Treasury and from each of the Departments whose Ministers are responsible for the affairs of nationalised industries.'

There is little that we can add to the views we expressed on the report when it was presented last August, save that the fourth annual reports of the Gas Council and the area boards which have since been published have confirmed that, by and large, the gas industry is extremely well run, and its improved efficiencies and mass economies are beginning to overtake rising costs arising from causes outside its control. The fifth annual reports and accounts are nearing completion and the chairmen of some of the area boards have already disclosed to their related consultative councils that there is no cause to be apprehensive of what those reports will reveal. Proposals for development over the next six years, submitted in support of the industry's plea for increased borrowing powers, are indicative of sound policy. With the exception of Commander Hyde C. Burton, the several Members of both sides of the House and representative leaders of the pre-nationalisation gas industry who expressed their views on the report last August were, broadly speaking, not averse to giving the proposal a trial, though they were alive to the possible dangers inherent in having

a Committee which might tend to interfere with the day-to-day operations of the industry. The indications are that Mr. Crookshank's proposal falls short of the appointment of a 'watchdog' body of the standing of the present Select Committee on the Estimates.

## NEVER-NEVER LAND

A great impetus to refrigerator sales has been given by the lifting, on July 14, of hire purchase restrictions imposed by the Hire Purchase and Credit Sale Agreements (Control) Orders. Broadly speaking, the lifting of these restrictions means that instead of having to put down one-third deposit and pay the balance off in 18 months, hirers can now pay as little as they can persuade a retailer to accept and take as long to pay as he will agree. The Orders are revoked because, in official parlance, 'the Government considers that in to-day's conditions it is no longer appropriate to control the terms of individual agreements for particular articles, but there is no change in the general limitation of finance for hire purchase.' In fact the Government was considerably influenced by the loopholes which were being discovered in the Orders, and the *Financial Times* refers to the move as being 'the first sign yet of a retreat in the campaign against consumer credit which has been waged with varying success since the end of the war.' An important aspect is the fact that because there is to be no change in the general limitation on finance for hire-purchase concerns, lower deposits and longer repayment periods may cause some embarrassment. Should this happen any major sales efforts by the nationalised industries (which, of course, finance their own schemes), making use of the easier terms now available may attract accusations of unfair trading.

Despite these undercurrents, there is no doubt that the Government's action will be welcomed by manufacturers and retailers alike. Area gas boards have been busy evolving their terms individually, although the North Thames and South Eastern Boards are working in unison. They are offering washing machines on three years' h.p. and refrigerators also on three years but with the proviso that this can be extended to five years if the sale proves difficult; one quarter's payment is demanded in advance. In the East Midlands all appliances are being offered on one, three or five years h.p., the period being optional. As an example of how this operates, an Astral refrigerator can be purchased for £3 deposit and 3s. 10d. a week for five years, or in the case of a 3-cu.ft. Electrolux, £5 deposit and 6s. 9d. a week over a similar period. It is perhaps interesting to note that this Board has increased its refrigerator sales 200% in the last year, and sales of gas-electric washing machines have also substantially risen; a further increase can be expected as a result of the new concession. The East Midlands Board is now offering most appliances in the 'popular' class for £1 down, and fitting costs need not affect this deposit, being spread over the period of repayment.

It is to be hoped that, as a result of the lifting of h.p. restrictions, there will be a substantial national increase in gas refrigerator sales, although there is no reason to suppose that this increase will be greater than for electric models. The unfortunate fact is that the price of refrigerators has not been the real deterrent, but that the public will cheerfully by-pass a necessity in favour of a luxury—television being the obvious example. All the same, there must be many people who have wanted a refrigerator for some time and who will now be encouraged to go ahead. The North Thames Gas Board has realised this and is working on its list of near misses, people who almost bought an appliance but not quite. Thanks to the new concessions, that should be a profitable field.

## PROGRESS IN FUEL RESEARCH

No-one will quarrel with the statement made in the Report of the Fuel Research Board for 1953 that during the last three decades there have been considerable improvements in the industrial use of fuels and of the heat and power derived from them. In this advance the work of the Fuel Research organisation, which now has a large and highly qualified staff, has without question made noteworthy contributions. And today, fortunately, there is less talk in the gas industry of overlapping of gas investigation at Greenwich—a sore point 30 years ago. It is transparent that much has been achieved within the last 10 years—*i.e.*, virtually since World War 2—by the Fuel Research Board, in collaboration with the Building Research Station, the Ministry of Fuel and Power and other Government departments, research associations, housing authorities, and the manufacturers of appliances, towards the better use of fuel in houses for space heating, cooking, and the provision of hot water supplies. In this regard the Fuel Research organisation has sought the aid of the gas industry, and the industry has been at all times ready to help and to co-operate in the work. How do we stand today? It is salutary to take stock. On the basis of existing knowledge, and with no undue capital expenditure, the same amount of useful heat and power as is now obtained could demonstrably be achieved with a saving over the country of several million tons of coal a year. The gas industry has shown how it could help towards this goal and it is the country's loss if its recommendations are passed over lightly in the current wave of atomic-energy fervour.

Later in this issue of the 'JOURNAL' we refer to certain aspects of the activities of the Fuel Research Board in 1953. We should like to emphasise here—as, indeed, the Chairman of the Board, Professor Sir Cyril Hinshelwood was at pains to point out in the report—the progress being made in investigations of a purely scientific order. The chemistry of coal occupies a prominent place in any organisation devoted to fuel research; and it is good to learn that a fresh attack by physical and chemical methods is being made on the problems of the changes in the molecular structure of coal as it is formed and matured underground. Extra-mural activities have been extended at the Universities of Oxford and Birmingham; and it is of interest that in 1953 the application, at Greenwich, of radioactive tracers to the problem of hydrocarbon synthesis yielded useful results.

A further general aspect which we would underline is that much time and effort are expended by the Board in giving scientific and technical assistance and advice to other Government departments both at home and in the Commonwealth overseas. This often involves experimental work. For example, in the year to which the report relates, analytical work on Tanganyika coals was continued for the Colonial Development Corporation, and on samples of peat in the co-operative work for the Peat Committee of the Scottish Home Department.

Experimental work on the 'Ferralyst' process for the recovery of sulphur from coal carbonisation gases was undertaken at the instigation of the Natural Resources Technical Committee). So we could go on; we have, however, indicated clearly enough that the work of the Fuel Research Board is many-sided and its influence far-reaching.

## EXPLOITING NEW METHODS

Sir Ernest Smith took the opportunity at a Press conference last Friday heralding the issue of the annual reports of the Industrial and Domestic Coal Consumers Councils, to which we shall make further reference in a later issue, to comment on a letter published in *The Times* the previous day from Professor D. M. Newitt on Mr. Geoffrey Lloyd's statement in Parliament regarding the Gas and Electricity (Borrowing Powers) Bill. 'Perhaps the most disconcerting part of the statement,' wrote Professor Newitt, 'is that relating to the manufacture of gas from oil; and for this the gas industry itself is partly to blame. It has long been recognised that new methods of gas making would have to be developed to deal with a wide range of non-caking coals; and that processes of total gasification would eventually be required. The industry has accepted this necessity and, for upwards of 20 years, has devoted a considerable research effort to finding a solution to the technical and scientific problems involved. While the results have been most encouraging, there has been a great lack of initiative in exploiting them; and there is today not a single large-scale total gasification unit either projected or in operation. The alternative—the production of gas from oil—has little to be said in its favour, other than that it relieves the industry from the financial risks and the hard work associated with introducing a new process. It is also something of an anomaly that, while plans for manufacturing gas from oil are receiving official encouragement, the large oil refineries are, at the present time, burning to waste quantities of high-grade tail gases equivalent to nearly 250,000 tons of coal a year. Total gasification processes at the pit-head, combined with long-distance transmission and grid distribution, can effect significant economies in industry and can make an invaluable contribution towards smoke abatement and public health. But vigorous and imaginative planning is required and no time or money should be wasted on the retrograde step of making the industry dependent on a costly imported raw material.'

It was in many respects a useful letter, but Sir Ernest Smith felt that it was a little unfair inasmuch as the gas industry has developed and has, in fact, in production, processes which do not require that particular class of high grade coal normally deemed to be essential to the industry. Only by experience can the industry justify further developments. In these days of large scale operations the erection of gas making plant involves considerable capital expenditure, and in the ordinary course it is to be expected that such plant, subject to proper maintenance and repair, will have a life of up to 40 years. Big changes in a short time are therefore improbable, but Sir Ernest, speaking not merely as Chairman of the Industrial Consumers Council but from his ripe experience in the gas industry left no doubt in the minds of his hearers that the industry is fully alive to the necessity for vigorous and imaginative planning.

## THE RIGHT TO SNOOP

An interesting controversy in these days of freedom-consciousness is the extent to which the public should be encouraged to give information about anti-social practices. Few people want to snoop and report the neighbours when they see an unlicensed garden hose or a motor car being driven over the speed limit. But there are occasions when we have to incur the wrath of fellow men in order to protect ourselves from those who hold nothing sacred. For examples, drunken drivers and wilful soilers of the air. In the current edition of *Smokeless Air*, journal of the National Smoke Abatement Society, comment is made on Salford's decision to ask the public to report serious instances of smoke pollution. The Society believes that 'the consciousness (and conscience) of the public has already been stimulated in this way.' We gladly give what emphasis we can to its contention that 'just as it is the citizen's duty to report instances of contaminated food and dirty conditions in cafés and other public places, so it should be considered the duty of the modern citizen to report instances of pollution of the air. The Society, in its missionary zeal, gives excellent coverage of its sphere. Another subject they comment upon in this issue is the statement in *Fire and the Atom Bomb*, a Stationery Office defence publication, that smog over our cities would filter off most of an atom bomb's flash rays, but this is merely an excuse to draw our attention to the pollution position in Moscow. Here, according to Tass, the official Soviet News Agency, a 31-mile belt of trees has been planted round the city to act as a natural air purifying screen and progress is being made with mechanical stoking, a switch to gas in many factories, a device to purify car exhaust fumes, and a ban on diesel buses in the centre of the city. Tass's boast, therefore, that Moscow's air is becoming dirtier is probably no idle one. While it is comforting to know that so long as we are being asphyxiated with filthy air we are less vulnerable to atomic burns, it would be even more comforting to be able to breath freely in our city streets. Thanks to the work of the National Smoke Abatement Society and similarly public-spirited bodies, that prospect is nearer than ever.

## C.O.M.A. YEAR BOOK

In a preface to the Coke Oven Managers' Association Year Book for 1954—the 35th published in successive years—the President, Mr. W. A. P. Hoskin, mentions the editorial committee's indebtedness to a member of the Council for compiling a cumulative index. The index which last appeared in 1941 covers both names and subjects for the years 1941 to 1953 inclusive.

The list of foreign plants has again been extended and further information has been promised for the 1955 Year Book. In this year's well-produced edition the standard of papers, which have been presented to the sectional meetings of the Association are of considerable technical interest, as usual, and the high quality of earlier years has been more than maintained.

## PRESSURE HYDROGASIFICATION

Results of a laboratory study of the effects of pressure and feed hydrogen in high B.Th.U. oil gas production are presented in 'Production of Natural Gas Substitutes by Pressure Hydrogasification of Oils,' an Institute of Gas Technology, Chicago, interim report by H. R. Linden, J. J. Guyer and E. S. Pettyjohn. Three typical gas-making oils, diesel oil, reduced crude, and Bunker C, were employed in the tests, which were carried out at gasification pressures of one to five atmospheres, cracking temperatures of 1,350° to 1,550°F., residence times of 2.5 to 10.5 seconds, and hydrogen-oil feed ratios of 0 to 90 SCF per gal. Data on the substitutability of the gases for high-methane natural gas are reported and burner test results are related to gas composition. The combustion tests were conducted at approximately rated burner heat inputs using the five critical appliance burners employed in previous studies of oil gas-natural gas substitutability. These data, with the Institute's previously published studies of high B.Th.U. oil gas production, provide a basis for application of the novel pressure hydrogasification process to the design of plants for the production of complete natural gas substitutes.

# Personal

MR. J. F. RUST, Chairman of the Newport Group Committee, Wales Gas Board, has been installed President of the Newport Rotary Club.

MR. JOHN C. BARWICK, General Manager of Clapham Brothers, Ltd., Gas and Chemical Engineers and Contractors, Keighley, has been appointed a Director of the Company.

SIR ARTHUR SMOUT has resigned from the Chairmanship of the newly formed company, British Industries Fair, as a result of a recent accident at his home in Worcestershire. SIR ERNEST GOODALE has agreed to act as Chairman until a permanent appointment is made.

MR. J. E. THOMAS, M.B.E., J.P., of Cowley, Oxford, who has been a member of the Southern Gas Consultative Council since its formation, has been appointed Deputy Chairman of the Council in succession to Mrs. A. E. M. Oliver, of Portsmouth.

MR. WILLIAM C. HOGG has resigned his position as District Manager of the Kelty and Lochgelly joint undertakings of the Scottish Gas Board (Fife District) on his appointment as Assistant Scottish Officer to the Coal Utilisation Council, with headquarters at Glasgow. Mr. Hogg has been at Fife for the past 10 years and was previously with the Glasgow Corporation Gas Department.

MR. LESLIE HARDERN, Public Relations Officer to the North Thames Gas Board, has been elected Chairman of the Council for Visual Education.

MR. O. D. ANGELL, Senior Partner of Belisha & Co., Stockbrokers, has joined the Board of the British Vacuum Cleaner and Engineering Co., Ltd.

LORD SIMON of Wythenshawe has been appointed President of Simon-Carves, Ltd., the Stockport engineering group, having relinquished the office of Governing Director.

MR. N. J. SHERGOLD has been appointed Manager of a new branch office of Air Control Installations, Ltd., Ruislip, Middlesex, to be opened in the Newcastle-on-Tyne area. Mr. Shergold, who has extensive experience of fan and air treatment engineering, will for the time being deal with enquiries at 76, Holywell Avenue, Whitley Bay, Northumberland (T/N Whitley Bay 23046).

MR. A. HASLAM WOOD, Barnsley, has been appointed Chairman of the East Midlands Gas Consultative Council in succession to ALDERMAN C. R. BATES, whose retirement has already been announced. Mr. Haslam Wood is Chairman and Managing Director of Wood Bros. Glass Co., Ltd., Barnsley, and is well known in the field of glass manufacture.

# Obituary

MR. T. F. LISTER, Chairman of Hackbridge and Hewittic Electric Company, died on July 13 at the age of 71. Following his engineering training at Halifax Technical School, he started his career with a small engineering firm in Yorkshire in 1898. Three years later he joined Ferranti, Ltd., and after only a few months at Hollinwood was transferred to the Contracts Department of their London Office. This office was closed down in 1904, and he then joined the General Electric Company at Queen Victoria Street for a few months. In 1905 Mr. Lister joined the Metropolitan-Vickers Electric Co., Ltd. (then British-Westinghouse), where he remained for 20 years. In 1925 he left Trafford Park to take up the position of Manager of the Hackbridge Electric Construction Company at Walton-on-Thames. In 1926 he was appointed Manager also to the Hewittic Electric Company, Ltd., becoming Director of both Companies in 1931, Managing Director of these Companies and also the New Switchgear Construction Co., Ltd., in 1944, and Chairman and Managing Director in 1946. In 1947-48 he was made Chairman and Managing Director of the newly amalgamated group under the title of Hackbridge and Hewittic Electric Co., Ltd. He retired from the position of Managing Director in March, 1954, but remained Chairman. He took a great interest in youth education and was a governor of Brooklands Technical College, Weybridge.

MR. JAMES ELLWOOD, Manager of the former Fordingbridge Gas Company from 1896 until his retirement in 1933, has died at the age of 91.

MR. C. B. COLLINS, an Executive Director of the British Vacuum Cleaner and Engineering Co., Ltd., has died after having been associated with the Company since 1912.

MR. JAMES F. TYNDALL, who died at Edgware on July 7, was for 17 years Engineer and Manager of the Deal and Walmer Gas Company until his retirement from the industry nearly 15 years ago. During his long career, Mr. Tyndall had participated in the development and progress of the gas industry in Ireland. His energy and ability contributed largely to the success of the undertakings with which he was associated. He leaves a widow, two daughters and a son, Frederick, who is General Manager of the Hong Kong and China Gas Company.

# Diary

**July 23.**—NORTHERN JUNIORS: Visit to the Laboratories and Works of Robert Bowron & Co., Ltd., Pelaw, 2.15 p.m.

**July 23.**—SCOTTISH G.C.C.: 26, Drumsheugh Gardens, Edinburgh, 11.30 a.m.

**July 29.**—NORTH THAMES G.C.C.: Meeting at Works of R & A. Main, Ltd., Edmonton, followed by inspection of works.

**An Experimental Gas Purifying Plant** is being built at Blyth (Northumberland) by the Northern Gas Board and will be completed within six months. If the plant proves successful, others will be erected elsewhere. It is pointed out that the plant will not reduce costs of production, but is expected to reduce considerably the amount of air pollution in the vicinity of the works.

## Women's Gas Federation

A successful meeting was held under the auspices of the Women's Gas Federation in the gas showrooms at Bournemouth on July 9 at which the principal speakers were Dame Vera Laughton Mathews, Chairman of the Women's Gas Federation, and Mr. J. T. Haynes, General Manager, Western Division, Southern Gas Board. Ninety-seven members joined the newly-formed branch covering the area of the Southern Gas Board.

A scheme has been launched whereby members of the Women's Gas Federation will have gas appliances and sections of appliances demonstrated to them to enable them to complete questionnaires on the design and practical value of the appliances. This will give them an opportunity of expressing their views and at the same time will stimulate their interest in the latest developments. The first subject selected is the grill.

## Happy Factory Life

The Coventry Works Social Club of George Wilson Gas Meters, Ltd., recently held its annual social event for the distribution of the prizes for the various competitions which take place each year. At the same time the opportunity was taken by Mr. W. D. Wilson, Chairman and Managing Director, to make presentations to members of the Company who have recently completed 30 years' service. Shortly after the war it was agreed that such loyalty should be recognised and since then as each employee attains this period of service a clock, suitably inscribed, is presented.

Our photograph shows Mr. Wilson presenting the Chairman of the Social Club, Mr. D. T. Daffern, with a clock in token of his service of 30 years. The Company takes a great interest in this side of the works activities, feeling that a strong social committee has a material bearing on happy human relationship in factory life. Among other prize-winners were Mr. F. C. Wilson (Uncle Fred), who was the runner-up in the cribbage competition, and Mr. W. D. Wilson, who was runner-up in the table tennis competition.

**A Trading Profit** for the past year of £5,232—an increase of £775 over 1952-53—has been reported by Mr. J. Collins, Gas Manager, in his annual report to Newry Urban Council Gas Committee. This, Mr. Collins said, was the highest trading profit recorded during the past 30 years. Unfortunately it would be greatly reduced by loans, interest and principal repayments, which were the result of heavy financial expenditure between 1946 and 1950, in providing new plant and services.

# THE ROYAL SHOW

*Left: The attractive and surprisingly 'permanent' nature of the Gas Council's stand is emphasised in this photograph of the domestic section.*

In the lovely setting of Windsor Great Park the Royal Show presented to the world—for overseas buyers were much in evidence—a scene of almost unparalleled colour and movement. For the farmer there were the Red Polls, the Border Leicesters, and the Wessex Saddlebacks in glorious and noisy profusion, together with a superb display of agricultural machinery. For the urban visitor there were numerous exhibits of a domestic nature. For both there was the thrill of the main ring and the Royal visitors.

The Gas Council made the best of a position which although not bad, was hardly ideal. Forced to have a stand on the perimeter of the ground (gas supplies not being allowed across the ground), the Council chose a site adjacent to the main entrance. Largely because of this, attendances on the gas stand were not impressive, and the presence of the fair numbers who did visit the stand was almost certainly due to its extremely effective appearance. Basically this year's stand was much the same as in the last year or two, but positioning, décor, etc., were changed, and the finished product was a delight to the eye.

### Appeal to Town and Country

Designed to appeal to the farmer's wife and to rural dwellers generally, as well as to the working farmer, the comprehensive display of gas and coke exhibits included a wide variety of domestic appliances as well as sections for dairy, greenhouse, poultry and agricultural equipment. A feature of the stand was the cookery demonstration theatre in which home service advisers illustrated the preparation and cooking of a great number of dishes, especially those for summer days. The North Thames Gas Board staffed the demonstration theatre, for which an attractive leaflet was produced; two local newspapers carried North Thames advertisements relating to demonstrations at the show. Another attraction in this section of the stand was the model kitchen, specially designed and planned, and equipped with examples of up-to-date appliances.

Among the domestic equipment on view was the 'Courtier 6R' stove (Mitchell Russell & Co., Ltd.), which has been specially designed for medium sized houses and is easy of installation and simple to operate with most economic heating, thanks to the firebox designed to give heat outwards into the room, not up the chimney. Interesting items in the section for larger-scale catering equipment were the gas-heated ham cooker and the gas-heated fat clarifier (W. J. Hubbard & Sons, Ltd.). Also here was the 'Polete Broche' rotisserie grill (Biffault Range Co., Ltd.), the roasting spit brought up-to-date, which has proved popular with those needing to roast several birds at once.

### Coke Exhibits Enlarged

The increasing use of coke in the agricultural field led to an enlargement of the Gas Council's coke-heated agricultural exhibit. Within a 75-ft. Dutch barn were housed a Slade-Curran green crop drier and the Templewood unit drier, both with coke furnaces and both working exhibits for the period of the Show (July 6-9). There was also a working exhibit of an example 10-hole brick built platform for grain drying, together with a 45-cwt. Bettison batch drier, both items being heated from the Gas Council No. 2 coke furnace constructed by R. Bettison, agricultural engineers. This exhibit proved popular with farming visitors, and indicated how real is the interest of the farmer in things which closely affect his business.

### Designed for the Dairy

Rather better looking than in previous years, the dairy section included the new 'Taycoke' hot water boiler with steam-raising block. This is an entirely new item designed by the Gas Council Coke Department and manufactured by Robert Taylor & Co. (Ironfounders), Ltd. The boiler has been designed for herds with up to 40 head in milk and is a continuous burning unit which can also supply hot water to the farmhouse. A bottle-washing machine specially designed for the smaller dairy, with a sterilising capacity of up to 1,500 bottles an hour was shown in the dairy section; this was the Miller Hydro Junior (British Miller Hydro Co., Ltd.).

Poultry farmers found something to interest them in the gas-fired chick brooder by John Shepherd & Sons, Ltd., and the 'Superior' gas-fired incubator by Horace W. Stephens, Ltd. The latter is available in five sizes for between 70 and 390 eggs and has been specially designed on the double wall principle, and packed with insulating material to conserve heat. They are, therefore, most economical in fuel consumption. Every piece of timber used in the construction has been so thoroughly seasoned and kiln dried that there is no possibility of joints opening or panels bulging.

Smokehouse equipment for ham, bacon, fish, poultry, game or cheese is a speciality of the Dowson & Mason Gas Plant Co., Ltd., and their gas-heated 'Popular' smokehouse was on view. Smoke is generated automatically in a separate cabinet at the side of the hanging chamber, and there is thermostatic control of the burners. The gas rating is 16,000 B.Th.U. per hour, equivalent to 32 cu. ft. per hour of 500 B.Th.U. gas.

### Other Exhibitors

Electricity—in the shape of the British Electrical Development Association—was far below the standard of some previous years and, in our view, scarcely did justice to certain aspects of the excellent story which the electricity industry has to tell in the agricultural field. The Calor Gas Distributing Co., Ltd., was well represented on a simple but effective stand, and much credit is due to the National Coal Board for their initiative in showing the farmer how he gets his coal and its various by-products, by means of a first-class piece of display.

A number of firms familiar to the gas industry were represented, among them John Allen & Sons (Oxford), Ltd., Automotive Products Co., Ltd., British Oxygen Co., Ltd., British Thomson-Houston Co., Ltd., Dunlop Rubber Co., Ltd., Ewart Chainbelt Co., Ltd., Goodyear Tyre & Rubber Co. (G.B.), Ltd., R. A. Lister & Co., Ltd., Mackay Industrial Equipment, Ltd., Murex Welding Processes, Ltd., Pegson, Ltd., Ransomes, Sims & Jefferies, Ltd., Stewarts & Lloyds, Ltd., Yorkshire Copper Works, Ltd.

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**Mutual Marketing.**—George Kent, Ltd., and Foxboro-Yoxall, Ltd., announce that they have made arrangements for mutual marketing of the Foxboro d/p cell and the Kent oxygen analyser in the United Kingdom. Foxboro selling of the Kent oxygen analyser may later be extended to the United States.

# Re-organisation in the South East

## Concentration of Manufacture in Fewer Larger Works

***Sixty-seven manufacturing stations and 9,118 miles of main were taken over by the South Eastern Gas Board on vesting date. A programme has been submitted to the Ministry of Fuel and Power providing for manufacture to be concentrated in 15 works—plus the possible addition of two new works—and for increasing the total length of mains to 11,037 miles by 1965. The proposals were explained to the South Eastern Gas Consultative Council on July 6 by Mr. R. Prince, Chief Engineer.***

Mr. A. B. Constable presided at the meeting of the South Eastern Gas Consultative Council at Caxton Hall, Westminster, on July 6, at which, as already reported in the 'JOURNAL,' approval was given to the Board's proposals for increasing the price of gas throughout the area by amounts varying from 1d. to 2d. per therm, and for establishing only three flat rate prices for the area, against about 100 different rates in operation at vesting date. Mr. R. S. Johnson, Deputy Chairman of the Board, who explained the reasons for the increases, was accompanied by Mr. R. Prince, Chief Engineer, Mr. R. H. Sandford Smith, Secretary, Mr. C. Stredwick, Chief Accountant, and Mr. V. W. Stanton, Commercial Manager.

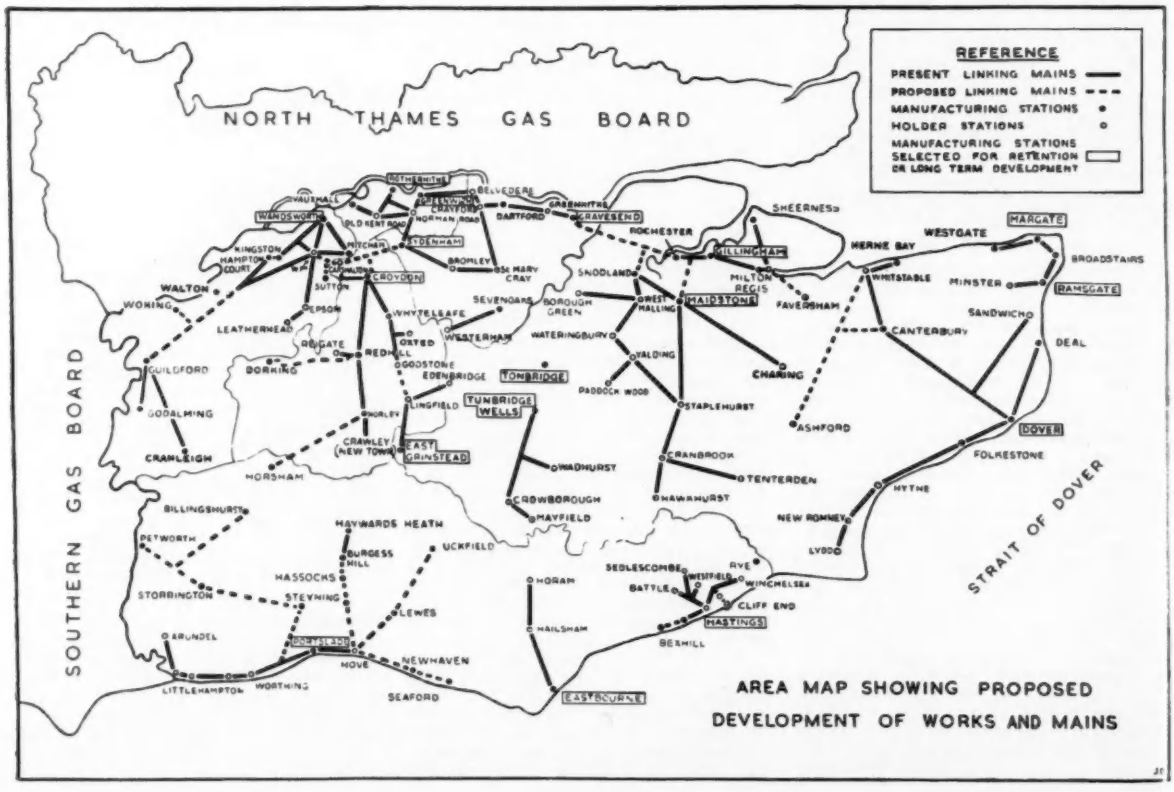
MR. R. PRINCE, Chief Engineer, outlined the Board's programme of re-organisation and development over the next 11 years, details of which had been submitted to the Minister of Fuel and Power. He said an estimate had been made by the Commercial Department of the number of consumers to be supplied in future, based on housing and other developments, together with the trend of consumption, and similar estimates had been prepared for the expected demand from industrial and commercial consumers. Those estimates led to the assumption that by 1965 the total demand for gas would have increased by 21%, which represented a cumulative increase at the rate of 1.6% per annum.

### Manufacture and Distribution

To supply the estimated requirements of gas, it would be necessary, during the next 12 years, to increase the capacity of the manufacturing plant by 56 mill. cu.ft. per day. During the same period plant capacity equivalent to 156 mill. cu.ft. per day would become obsolete and should be replaced, and therefore the Board was planning to construct and install new plant with a total capacity of 212 mill. cu.ft. per day. The general aim of the Board's programme was to build up a small number of major works where gas could be made cheaply and to lay trunk mains to supply gas from those works throughout the area. The most important influence in the selection of those works was the cost of bringing coal to them. There was only one pit in the area producing coal suitable for gas making, namely, the Chislet Colliery in Kent. The coal obtainable from Chislet was 3% of the total required for the area and was only sufficient to supply local works. Thus 97% of the coal supplied to the Board came from the North of England, and the works alongside the River Thames and those on the coast, receiving coal direct, could produce gas more cheaply than the inland works. The Board's proposals aimed, therefore, at reducing production costs by manufacturing more gas at the riverside and seaside works and transferring it inland, as the savings which could be achieved more than covered the cost incurred in providing trunk mains and pumping plant and transporting coke for sale inland.

The shortage of suitable gas making coals, together with improved production techniques, had led the Board to the decision that for future planning carbonising plant should not form more than 50% of the total plant installed at any works, the balance of capacity required being obtained from carburetted water gas or other gasification plant. Although the programme was based on the use of present production techniques, the Board was studying the possibility of employing less orthodox methods of gas production, and would take full advantage of any products would could be obtained from oil refineries, or supplies of natural gas should the present investigations now being made in Sussex prove successful.

At vesting day the Board had 67 manufacturing stations which had now been reduced to 58. If the programme was adhered to, by 1965 a further 43 works would have ceased to manufacture and



15 works would remain as production units plus the possible addition of two new works.

East Greenwich, the Board's largest manufacturing station, at present had a manufacturing capacity of 53 mill. cu.ft. per day, and it was intended to build up that to 76 mill. cu.ft. At Rotherhithe, where good jetty facilities were also available, the present capacity was 9 mill. cu.ft. per day, and it was intended to build up that to 25 mill.

### Vauxhall Works to Close

Old Kent Road works ceased manufacture in May last year, leaving Vauxhall as the remaining works in the Metropolitan Division. Providing the Board secured a site for a new works at Gravesend, it was not intended to continue production at Vauxhall, but it was not yet possible to give a date when manufacture would cease there. At present a supply of gas was afforded by the Metropolitan Division to the Kent Suburban Division of the order of 10 mill. cu.ft. per day which augmented the gas manufactured at Sydenham and enabled usually some 500,000 cu.ft. per day to be pumped to the existing Gravesend works. This supply from the Metropolitan Division enabled the Board to close Bromley works on March 31 this year, and it was hoped to close the Dartford works by the end of 1954.

In the West Surrey Division, Wandsworth was the principal manufacturing station, and all coal required for both Wandsworth and the other works in West Surrey was unloaded at the Wandsworth jetty. The works at Wandsworth would be permanently retained and its capacity would be increased from 30 mill. cu.ft. to 60 mill. cu.ft. per day. In East Surrey, Croydon would be retained as a manufacturing station but would not be increased beyond its present size.

### London Divisions to be Linked

One of the most important projects which the Board had undertaken was to lay a main varying in size from 36 in. to 24 in. diameter interconnecting the four London Divisions. This main was being laid from Sydenham to Worcester Park with branches to Croydon and Sutton. It would enable gas to be moved from East Greenwich to the other divisions and effectively integrate the whole of South London. As the selected works in those divisions were developed, the divisional supplies would also be extended; for instance, a main was to be run from Esher to Guildford and Godalming, enabling gas from East Greenwich and Wandsworth to supplement gas manufactured at Guildford, and as that plant was worked out enable the Guildford works to be closed down ultimately. From this South London main marginal supplies of gas would be taken from Croydon to be pumped forward to Redhill, Dorking, Horley, and Horsham, instead of manufacturing at those local stations.

The next most important integration scheme was that in Sussex. A major reconstruction of the Brighton works had recently been completed and bulk supply mains were now being laid at Newhaven and Seaford, Lewes, and Uckfield, and others were planned for Hassocks, Burgess Hill, and Haywards Heath, and Steyning, Storrington, Petworth, and Billingshurst. Production would cease at all these works immediately the mains were completed.

The existing bulk supply main from Dover to East Kent was being replaced by a main of rather larger size and on an amended route to provide better gas supplies. This main would be wholly supplied from the reconstructed Dover works, which was being built up from a capacity of 2 mill. cu.ft. to 16 mill. cu.ft. per day, while Dover would also supply Deal and Folkestone. The Board had also interlinked Westgate, Margate, Broadstairs and Ramsgate, which had enabled the Broadstairs works to be temporarily closed down and considerable economies to be effected in the Isle of Thanet. The proposed new Gravesend works was to be interlinked with the Metropolitan Division and with the Medway towns. The Board was about to complete the laying of a main linking Rochester with Maidstone which would enable Maidstone to assist Rochester until additional supplies became available from the new Gravesend works, when the flow of gas would be reversed. Distribution of gas in the area was highly complicated. It was calculated that at vesting date there were 9,118 miles of mains in use throughout the area, and when the Board's present proposals were completed in 1965 this would be increased to no less than 11,037 miles.

### Financial Effects

Summing up the effects of the programme, Mr. Prince said 20% more gas would be produced by 1964-65 to meet the then demand as compared with the present time, but owing to improvement in technical efficiency the proportionate consumption of coal, gas oil, coke and breeze would be rather less. There would be a considerable reduction in the cost per ton of coal carbonised as a result of concentrating gas production at riverside works. There would be substantial economies in process labour resulting from the concentration of manufacture at the larger works, and lastly, the cost of repairs of plant would drop progressively as new plant was built, while the cost of overhead expenditure at works level would decrease.

The programme of long term development and reorganisation submitted to the Minister covered the whole range of the Board's activities, such as the shipping department and consumer service, in addition to the major projects to which he had referred. It was accompanied by estimates to show the financial effect of meeting the higher capital charges which would result from replacing capital assets with new plant at current prices. These estimates showed that the additional interest and depreciation charges on new plant would be covered by the economies to be expected from the integration schemes proposed. As these schemes were completed the present high level of capital expenditure would fall and the point should be reached where the new capital expenditure could be covered from depreciation charges and other revenue provisions. All these estimates were based on the assumptions that prices, wages and interest rates remained unaltered and that the gas load increased in accordance with the forecast of 1.6% per annum cumulative.

### Shortage of Labour

At a previous meeting the Council considered a submission made by the Kent Suburban Committee that the service situation in the Beckenham neighbourhood called for investigation. Complaints were being received from consumers alleging delay in attention to apparatus. The committee had been given to understand that there was a serious shortage of labour and that for that reason the Board was unable to give the desired standard of service. The Council had given general support to the suggestion that some use might be made of the services of local plumbers and hot water fitters.

The Board, in reply, considered that its local staff was doing its best in the difficult circumstances created by the shortage of labour in the Beckenham district. The suggestion that outside labour should be employed while the present shortage of labour lasted was attractive, but in practice it was not easy to find local firms who could carry out work to the Board's standard. In any case such arrangements could only be made for new work, maintenance work being quite unsuitable for outside contracting.

### No Immediate Solution

Mr. Stanton told the Council that the trouble was due, not to having less men, but to having more business. It was not confined to Beckenham; there was a shortage more or less throughout London and in some of the county divisions. There were three possible ways of dealing with the situation, to introduce incentive schemes in order to get more work from the men, to work more overtime, and to introduce outside people. Each of these remedies presented difficulties. Some men had been temporarily transferred from one division to another, but there was a limit to what could be done in that respect. There was some inequality in strength between the divisions, but there was plenty of work for everybody in the division in which he was stationed. He could offer no immediate solution, but he assured the Council that they were dealing with the matter to the best of their ability.

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## Eastern Price Up 1d. a Therm

After hearing a statement by Mr. J. H. Dyde, Deputy Chairman of the Eastern Gas Board, on the effects of increased costs beyond the control of the Board, the Eastern Gas Consultative Council on July 19 regretfully approved an increase of 1d. per therm, or 5d. per 1,000 cu.ft., in all district flat rates except at certain small undertakings where the price had already reached a 'ceiling' of 24.5d. a therm, or 10s. 3d. per 1,000 cu.ft. The Board's tariffs are to be varied as follows:

Domestic two-part tariff: Commodity charge to be reduced from 75% to 70% of the district flat rate price, the effect of which will be to make the tariff advantageous at a lower rate of consumption and therefore of benefit to more consumers.

Non-domestic block rate: Discount on the last four blocks to be increased, the effect of which will be that gas consumed in excess of 25,000 therms per quarter will not bear any part of the flat rate increase. Consumptions from 5,001 to 15,000 therms per quarter will carry ¼d. increase, and between 15,001 and 25,000 therms per quarter only ½d. per therm increase.

Bread baking block rate: Gas consumed in excess of 100 therms per quarter will be increased by ½d. per therm, or 3d. per 1,000 cu.ft.

# Coal Tar Technology

The *Review of Coal Tar Technology* for July-December, 1953 (Vol. V, Part 2), just published by the Coal Tar Research Association, covers the same field as previous issues and is important alike to students and those already engaged in the tar industry—an industry with very many branches. There are two sections to the Review, one covering coal tar and coal tar products, the other dealing with general chemistry and chemical technique. The first section is divided into chapters treating in turn the formation, constitution, and analysis of coal tar; primary fractions; tar acids and bases; monocyclic and polycyclic aromatic hydrocarbons; and the utilisation of coal tar and its products. The second section is concerned with organic, catalytic, physical, and analytical chemistry germane to the subject, and with chemical techniques and processes.

The abstracting and compilation are very thorough and pretty well exhaustive. The volume is essentially a pointer to current literature; and we may mention that there are well over 500 references to work carried out in practically every country in which the tar industry forms part of the national economy. The subject, author, and patent indexes—again most carefully compiled—form a welcome feature of the C.T.R.A. *Review of Coal Tar Technology*.

Since the advent of the co-operative tar schemes, direct interest of the gas industry in the distillation of tar and the utilisation of tar products has largely diminished. Without going into any detail regarding the current volume of the C.T.R.A., it is interesting to record the additional information which has accrued and has been published regarding the Newton Chambers pipe-still furnace in operation by Lancashire Tar Distillers, Ltd. The plant incorporates a number of novel features, particularly in connection with the pipe-still. Heating is almost wholly carried out by convection, and special heat-resisting cast iron tubes with an extended needle surface are employed in conjunction with waste gas recirculation to ensure a high rate of heat transfer and efficiency of operation. The maximum temperature for the gases entering the main still coil is of the order of 1,200°F.

Interesting, too, is the reference to a French report which describes research directed towards reducing the amount of pitch used in briquetting. It is stated that the use of a new type of double cylinder press enables satisfactory briquettes containing 3½% of pitch, instead of the normal 7%, to be produced. From sources in other countries come the results of firing tests with pitch-bonded ovoids in domestic closed-type space heating appliances; and a useful summary has appeared of the low and medium temperature processes for the carbonisation of coal briquettes for the production of smokeless fuel. Another reference relating to pesticides mentions that a few years ago over 8,000 pine poles which had been impregnated with creosote were in existence in Great Britain. These had been in service for 70 years or more. On this subject the author in question states that surface application of creosote and other wood preservatives by brushing, spraying, or dipping, is of very limited value, and that to depend on such treatment for more than one or two years of added life would be unrealistic.

The price of the *Review of Coal Tar Technology* to non-members of the C.T.R.A. is 7s. 6d. Copies are obtainable from the Association at Oxford Road, Gomersal, near Leeds.

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# Analysis of Coal and Coke

In the current quarterly issue of *Fuel*, Dr. J. G. King introduces a series of papers covering recent work on the standardisation of methods of analysis of coal and coke. Dr. King says that in the background of standardised methods of analysis there is too often a wide field of experiment and checking which is only incompletely recorded in published material. When the time comes for revision, or when newly conceived methods have to be compared with existing standards, this lack can lead to unnecessary and tedious repetition.

He continues: This has been true of much of the standardising work on coal analysis carried out by the British Standards Institution and, in order to avoid this in future, the Editor of *Fuel* has suggested that a series of experimental papers covering recent revision work by the Coal Analysis Committee S.F.E. 45/8 should be published. The present article forms an introduction to the series. It will not be possible to observe any logical sequence of papers; one or more will be presented in each issue as they become available.

The first official move in the preparation of coal analysis standards in this country was made by the Fuel Research Board in 1921 when a committee was formed under the chairmanship of Professor Thomas Gray and included the leading experts, of whom only Dr. C. A. Seyler, Dr. R. Lessing, and the author now remain. Standards were issued by the Department of Scientific and Industrial Research and records of work done appear in the reports of the Director of Fuel Research. After the formation of the British Engineering Standards Association the work was handed over to that body (1928) and representation enlarged to include industry. From that time the work has progressed steadily, but without separate publication of the details of experimental work, except to a minor extent, and in the publication by the Fuel Research Board of details of methods used in the work of its Coal Survey. It is true that the latter overlapped with B.S. work since Fuel Research details were made fully available to the British Standards Institution, but all the detailed items of checking and assessment passed only into files.

Now, for two reasons, it is a very proper time to make a change. The experimental revision of the comprehensive B.S.I. standard, B.S.1016, is nearing completion after several years of work, and the International Standards Organisation (I.S.O.) has become active in formulating agreed international standards. The Secretariat of its fuels committee (I.S.O./T.C.27) is vested in this country with the British Standards Institution. It has never been so clear as in the discussions of this group that the best approach to international agreement is to make experimental details clear to all delegates; the circulation of details from the British Committee has gone a long way towards facilitating agreement on international methods. The approach to these methods is through stages of 'draft proposal' to 'draft I.S.O. recommendation,' 'I.S.O. recommendation,' and finally 'I.S.O. Standard.' Already the second stage has been reached on 10 different subjects, while eight others are in the first stage.

Details of methods and the reasons for the changes will appear in the series of papers, but several points may be underlined. The methods of B.S.1016 have proved to be generally reliable, and to compare favourably with other national standards. The changes now being made are of detail only and succeed in reducing operating time and the liability to error, rather than the increase of accuracy in skilled hands.

The important subject of a special moisture sample has been reviewed and it is proposed to introduce a new method for the measurement of the moisture content of coal in equilibrium with air 97% saturated with water at 30°C. The new method will provide a safe baseline for the comparison of coals on a basis of rank. Any hygroscopic salts are first removed by leaching with water.

More attention is being paid to the establishment of a formula or procedure to allow coal composition to be calculated to a basis of pure coal. The King-Maries-Crossley formula is still the most certain and its use is extended and modified. The determination of carbon and hydrogen is improved in speed, and slightly in accuracy, by combustion in oxygen at 1,300°C. Attention has been redirected to the possibility of formation of oxides of nitrogen in the Liebig method and it may be that carbon values obtained by this method tend to be high. The use of colorimetric methods is advocated for the finish of a number of determinations and indications are that accuracy will be improved as well as time saved. This is true of the determination of phosphorus and arsenic.

Methods of determining the caking of coal are the subject of strict comparison; it is intended that several, including the Gray-King assay coke type used in the classification scheme of the National Coal Board, will be finalised as identifying related, but not the same, properties of fusion and intumescence.

The methods for the determination of ash and sulphur have proved difficult internationally and this has led to a technique which shows every sign of reducing controversy. It consists in a working group of different nationals meeting at one (or more) laboratories and together analysing a series of coals by each of the methods under scrutiny. Already a volatile-matter party has facilitated agreement on this method; other parties will deal with ash and sulphur this year. The recorded results of these investigations will make interesting reading. The first two papers of the series will deal with the determination of the calorific value of solid and liquid fuels respectively.

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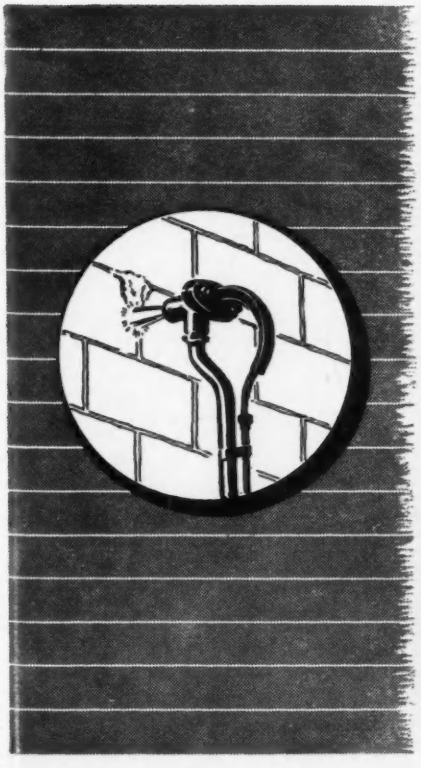

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# FUEL RESEARCH BOARD

## Domestic Heating : Air Pollution : Water Gas from Weakly-Caking Coals

The Report of the Fuel Research Board for 1953, together with the Report of the Director of Fuel Research, covers a wide field of fundamental research and applied investigation aimed at increasing the efficiency of using the primary fuels, such as coal and oil, and of producing and using the derived fuels such as coke, gas, tar oils, and electricity. In the short abstract which follows we refer especially, as being of immediate and direct interest to the gas industry, to those sections dealing with the work carried out on domestic heating, air pollution, and the production of water gas from weakly-caking coals.

The year under review saw three important developments in the work of the Fuel Research Station on domestic heating. First, after several years of discussion and experiment, a revised schedule of tests for domestic heating appliances and new minimum standards of performance required for official recommendations were brought into force. Second, a start was made on what promises to be an interesting and important research programme in the calorimeter building, in which the performance of various types of space-heating appliances will be investigated under conditions which approach much more closely those of domestic usage than do the conventional 'test bench' conditions. Third, the completion of the development of a new and much more stable type of smoke recorder will make it possible to investigate, as a routine, the smoke emission from all coal-burning appliances which are tested in the calorimeter building.

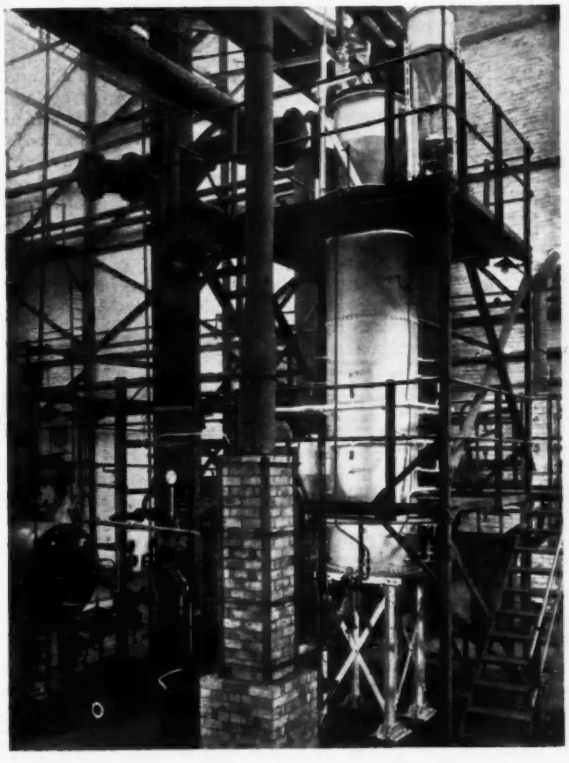
### Revised Test Schedule

The new arrangements for the testing and recommendation of domestic solid-fuel burning appliances for use in 'average dwellings' became operative on July 1, 1953. All applications for tests received after then have been dealt with in accordance with these new arrangements. Starting July, 1954, all appliances now listed as 'Recommended Domestic Solid Fuel Appliances,' which were recommended under the provision of the old schedule, will be re-tested to the conditions of the new. Those which do not conform will be removed from the list in due course. Existing standards have been revised in the light of present-day knowledge (the old testing schedule was drawn up in 1946-47) and established values which, while high, are known to be attainable in practice. It has been found necessary to introduce some dimensional and constructional standards to supplement the thermal tests, notably in the case of the inset open fire. Full compliance with the new standards is required on both coal and coke, though in certain instances a relaxation in the requirement for continuous burning on coke (*i.e.*, ability to burn for 10 hours without attention) is now permitted.

Under the new arrangements it is planned that all official tests will be carried out by the Fuel Research Station, either at Greenwich or in the laboratory of the Scottish Branch at Thorntonhall, near Glasgow. The fuel engineers of the Ministry of Fuel and Power will make a preliminary examination of each new appliance in the maker's works, and will also carry out practical tests where it is thought desirable. To quote from the report: 'Only when the Ministry is satisfied that the appliance has a reasonable chance of attaining the required standards will it be accepted for the official tests. The administrative relationships between the Fuel Research Station, the Ministry of Fuel and Power, and the manufacturers have been codified in a memorandum on procedure.' To enable the Fuel Research Station to cope with the increased volume of test work resulting from the new arrangements it has been necessary to rebuild the test laboratory at Greenwich.

### The 1952 Fog Disaster

There has been a steady growth of public interest in various aspects of air pollution. An indication is the increasing co-operation by local authorities and other bodies in the work of the Department of Scientific and Industrial Research on this subject. During 1953 general interest was greatly intensified, mainly as a result of the publicity given to the serious effects of the London fog of December, 1952, which was reported to have been responsible for some 4,000 deaths in the Greater London area as well as a great deal of illness. It is now recognised that, on the basis of the number of deaths caused, this incident was the worst of its kind recorded anywhere in the world. It was also unique in that for the first time direct measurements were available for the whole period. These include daily measurements of the smoke and sulphur dioxide concentrations, which have been compared with the corresponding data for a more normal December (1951). The effect of the relatively high levels of pollution during the fog (five to ten times normal) on mortality is shown by the close parallelism between the number of deaths in Greater London each day and the mean daily levels of pollution in that area. The time-lag between this apparent cause and effect was less than 24 hours. The study included the amounts of pollution



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*Pilot plant for the production of water gas by the fluidised-solids technique*

by smoke and sulphur dioxide occurring in the air in other parts of the country and some indirect evidence on possible concentrations of carbon monoxide, carbon dioxide, and sulphuric acid mist during the fog period.

During 1953 the Fuel Research Station assisted in a number of investigations concerned with the effects of atmospheric pollution on health. Arrangements have been made for the measurement of pollution in connection with investigations by the Treasury Medical Adviser and by the British Empire Cancer Campaign. Work has also been undertaken on the design and construction of apparatus for purifying air from suspended matter and acid gases, for use in researches in hand at a London hospital.

The Fuel Research Station continues to act as the administrative and research centre of the scheme whereby systematic measurements of pollution are made by local authorities and others in many parts of the country. The number of local authorities and other co-operating bodies making measurements of atmospheric pollution increased considerably during 1953

(from 152 to 180), as also did the number of instruments in use by them, the total of which, at the end of the year, stood at 1,338. Information on the distribution of pollution over the country as a whole, and particularly over certain of the more heavily polluted areas, is thus tending to become less incomplete. There are, however, many gaps in our knowledge, particularly on the variations from day to day and hour to hour.

### Gasification of Coal and Coke

Study of methods for the production of water gas from small ungraded weakly-caking coals and of producer gas from coke breeze continued in laboratory scale apparatus and small-scale pilot plant, with the object of developing processes capable of gasifying fuels that are both cheaper and more abundant than the large coke or nut coal currently used for these purposes. The ungraded weakly-caking coals and the coke breeze which form the basis of the work consist to a considerable extent of fine particles and dust, and are unsuitable for processes in which gas is passed through static beds of fuel. They are, however, well suited for processes in which gas is passed through dense turbulent beds of fluidised particles, or in which the particles of fuel are suspended in the gas. Investigations are in hand on the gasification of fluidised beds of weakly-caking coals with steam at about 900°C., and on the gasification of coal and coke with air in a cyclone chamber at temperatures above the melting point of the ash.

The pilot plant for the manufacture of water gas has been modified to provide better control of the ratio of supply of coal and steam and to reduce the losses of carbon carried off as dust. A 'disengaging chamber' is provided to allow some of the entrained dust to settle out from the gas made and to return to the fluidised bed of fuel. This has resulted in great improvement. Gasification of a Warwickshire coal (Type 902) at 900°C., admitting coal at 30 lb. per hour and steam at 30 lb. per hour, gave rates of gas production up to 750 cu.ft. per hour. A typical composition of the gas is: Carbon dioxide 13-15%, carbon monoxide 20-22%, hydrogen 55-60%, and methane 4-8%.

Preliminary experiments have been made to determine the possibility of producing reactive domestic coke from a weakly-caking Nottinghamshire coal of Type 802. The coal, of nut size, was carbonised at temperatures somewhat lower, and for periods shorter, than those normally used in gas manufacture when carbonising typical gas coals. The cokes produced had slightly higher contents of volatile matter than normal gas coke and gave a good performance when burned on an ordinary stool-bottom domestic grate.

Continued experiment at the Fuel Research Station into the Fischer-Tropsch process for the synthesis of oils and chemicals from coal 'ensures the existence of a centre of information for the benefit of the Government and of industry both in the United Kingdom and in the Commonwealth overseas. In the study of this process with laboratory-scale plant, particular attention has been paid to the effect of changes in the composition of the feed gas, because water gas ($H_2/CO = 1.0$ to 1.2) or gases richer in carbon monoxide ($H_2/CO = 0.65$ to 0.75) are less expensive to produce from coal than the conventional synthesis gas with $H_2/CO = 2$. Investigation of the liquid-phase (slurry) has been continued with laboratory-scale plant and a pilot-scale reactor has been constructed and erected. A successful run of 15 days' duration has been carried out with the pilot plant using the fluidised catalyst technique. An output of 50 to 60 gal. per day of oil and other useful products was achieved. Further progress has also been made in the investigation of the reaction mechanism and of the properties of the iron catalysts used for the synthesis.

### Extra-Mural Investigations

A fresh attack by physical and chemical methods is now being made on the problem of the changes in the molecular structure of coal as it is formed and matured underground. Work on the humic acids derived from coal has been extended at Birmingham University under the direction of Professor Stacey Ward. This is one example of extra-mural investigation. At the University of Sheffield work was started in 1953, under the supervision of Professor M. W. Thring, on the effect of town gas: air atmospheres in the treatment of steels at temperatures between 750° and 850°C., as in rod and bar annealing. It has been found that the amount of scale formed is independent of the fuel:air ratio when there is more than 15% of excess air. For simple steels it falls slowly and steadily to about half as much when there is an air deficiency of 15%. With heat-resisting steels the decrease is less because the initial value is much lower. With some steels a particularly easily detachable scale is formed when using about 10 to 15% excess air. Comparison of the results with those previously obtained when heating with the products of combustion of coal shows that, in general, less scale is produced using town gas, but a more adherent scale is formed. 'The problem of smoke emission from low temperature heat-treatment processes can be minimised by conversion to town gas firing, where economic considerations and the resulting scale permit.'

'Fuel Research, 1953,' is obtainable from H.M. Stationery Office at 2s. 6d. (by post 2s. 8d.).

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## COST FACTORS IN THE GAS INDUSTRY

**Following are points from the discussion on the paper on 'Appreciation of Factors Affecting Cost in the Gas Industry,' presented by Dr. J. M. S. Risk, at that time Chief Accountant of the Southern Gas Board, at the annual meeting of the Institution of Gas Engineers at Bournemouth on June 1. Abstracts from the paper were published in the 'Journal' on July 14 (pp. 105-109).**

**Mr. S. V. Smith** (Southern Gas Board) said the first thing he gathered about budgetary control in manufacturing plant was that it was a controversial subject almost from the general manager downwards. It was controversial because most members of management felt that the accountant was usurping their managerial liberty, and to a certain degree that was true; but after a time one came to realise that it was an instrument of management which, effectively used, could make one's job much easier than it would otherwise be. Budgetary control was not an experiment; it was an established system. Dr. Risk had referred to the flexibility of the system; it was because of its very flexibility that people believed that it had no foundation other than in the mind of the accountant. That was untrue.

It was because of that flexibility that they were able from period to period to change their standards. Budgetary control had been tried in the Southern Gas Board, he thought he was right in saying, with success. It was the Board's intention to extend it because they had proved that it did two things; it told them where they were going, and it created a far better team than would otherwise be the case.

### Budget Stability

**Mr. J. Carr,** O.B.E. (Deputy Chairman, South Western Gas Board), said the absence of literature on the subject was a reflection of the degree of its neglect in the gas industry and while some might agree that the setting up of a costing department incurred a definite expense against a problematical saving, he thought the paper disproved such an argument, particularly in large unit industries such as the gas industry now was and in which the full effect of personal management from top level could not be readily applied.

During the last five years the preparation of budgets had given many a severe headache, and with the continual rise in cost of items over which they had little or no control, the manufacturing and distribution budgets had been out of date within a matter of a few weeks. They had longed for stability, and to know that their budgets would be reliable for at least 12 months instead of possibly only 12 weeks. He would also add that the cost and financial accounting records should be integrated and complementary—two parts of one whole. Management at all levels down to foreman needed to be supplied with simple and clear cost statements related only to that section of the undertaking for which they were responsible. To expect, in this way, to engage the interest and help of the lower management ranks might seem to be impracticable and it was certainly something new in the gas industry. It was, nevertheless, working in many other places and if introduced carefully in an elementary manner, inviting the co-operation of all, should be capable of achieving tangible results, though it might well introduce some fresh factors for consideration in the selection of junior staff and foremen. Surely, too, they were losing a valuable opportunity if they did not use the consultative committees to discuss such statements.

**Mr. J. C. Hogg** (Bournemouth) suggested that greater emphasis on costing should be given in the training of engineering students to enable them to grasp the nettle of costing rather

than to brush it aside in their search for knowledge, and to train them to make use of their unique propensity for expressing a number of widely mixed terms in terms of money. Unfamiliarity with costing principles today placed the young engineer at a disadvantage which was inconsistent with his future responsibilities.

The setting up of standards and budgets year by year and the subsequent study of departure from the standards—and there would obviously be departures—had added greatly to cost consciousness in the Bournemouth undertaking. It had been in the form of a challenge at all levels to be able to set down in advance that which one expected to do during the ensuing year. The effect of becoming familiar with the movement of cost figures which in the gas industry were so inter-related lent confidence to the taking of appropriate action to meet the wide and frequent price changes and wage revisions which occurred at the present time. Those changes could play havoc with cost comparison. In the system referred to the standard acted as a sheet anchor in that change and the speed with which the costs could be recast to conform with the changed set of circumstances inspired confidence so far as the management was concerned.

### Question of Standards

**Mr. D. Elgin** (Scottish Gas Board) said the author had asserted that technical control and cost control should be part and parcel of an integrated scheme. He felt that cost control signalled effectiveness of technical control and that both were reflected in the success of the balance sheet at the end of the year. He had given the mechanics of this cost control system and it would be of interest to know how it affected the form of the balance sheet. As far as standards were concerned, that was where they entered the field of controversy. Were the standards set by the author of the evolutionary type? He thought they are. There was the other type of standard—the carrot before the donkey type—where the experts set standards and said 'Thou shalt achieve this'!

**Mr. C. Stredwick** (South Eastern Gas Board) said it was probably true to say that there never was a time in the history of the gas industry when the need for cost consciousness on the part of everyone who had any share in its management was more necessary than today when the competitive position was such that by increasing the price of gas they might invoke the law of diminishing returns. The coal industry was in that most favoured situation which enabled it to pass on its increased costs almost with impunity for its produce was the basic material required by the two principal competitors—gas and electricity.

### Cost Consciousness

'Cost consciousness' was the accountants' war-cry and it was not only in the interests of all, but it was vital that engineers and others responsible for productive work, with the aid of their accountants, should strive to bring down costs to the lowest possible level. There was little doubt that all boards had set some standards although they had not introduced standard costing. They would for instance compare the overall results of one works with another or one district with another, or certain classes of operation at one location with similar operations elsewhere. Comparisons were no doubt made with the corresponding results of a previous accounting period, and he imagined most of them were comparing results with what many simply termed 'the estimates' (or perhaps a little inaccurately 'the budget') for the period to which the results related.

If coal, wages, and price levels generally had remained static as at vesting day, they would have been able fairly broadly to gauge its efficacy there by comparing the current price of gas with the pre-vesting figure, but such a comparison could in fact very well be misleading, because those levels had not remained constant and tariff alterations or other considerations might have affected the published price. Nevertheless, the published price of gas at Bournemouth was given as 14.7d. per therm in 1948, whereas it was now 22d. and on the face of it this represented a steep increase, not one which obviously disclosed savings.

**Mr. J. Hyde** (South Eastern) said one of the most important variables in the consideration of carbonising costs was the quality of the coal being carbonised. If that variation of quality was ignored, then the variances between standard and actual were worthless. Perhaps Dr. Risk and his colleagues had integrated the standard carbonising costs with laboratory analysis of the coal quality. On the other hand, since pithead prices of coal were said to be based on quality, had the use of a standard pithead price for each type of coal been found to give workable results?

The setting of standards for district work by such employees as gasfitters presented many problems, since individual jobs varied so much. When a reasonably large number of appliance fixing jobs was considered, there was a definite relationship between the time taken in fixing and the length of pipe. The time was made up of a fixed component which varied for various types of appliances plus a further time found by multiplying a factor by the number of feet to be laid. For cookers the constant time was 1½ hours. This was presumably the time for unpacking the appliance and tools, checking the gas supply, connecting the cooker and adjusting it, repacking tools and the other minor tasks necessary even if the cooker was only a simple connection. The factor for multiplying by the pipe run was approximately 10 minutes per foot of pipe. The time to fix a cooker with a 10 ft. pipe run was, therefore, 1½ hours plus 10 times 10 minutes which equalled 3 hours 10 minutes.

### The Author's Reply

**Dr. J. M. S. Risk,** replying, agreed with Mr. Smith that budgetary control and standard costing told them where they were going and created a team spirit. No system could replace management. It was, at the same time, possible to mitigate the absence of perfection in the case of the poor manager and to assist the manager who had an aptitude for it. With regard to mechanical accounting, he agreed that no store system should be too elaborate or too expensive. It must be adapted to practical purposes, perhaps in some cases through the use of bulk issues. On the other hand, the store system was essential to avoid waste, and a standard costing store system required no more information for store purposes than any adequate store system required. In fact, through the use of standard prices, clerical work could be reduced.

Mr. Hogg had pointed out that the system could be adapted and was adapted to small undertakings. There was no question of trying to build a gasworks around budgetary control. The gasworks was there and the system was adapted to meet existing requirements. If measurements were not very accurate then the system would be that much less precise, but it would still operate and be of advantage.

Mr. Elgin had asked whether cost control did not signify effectiveness of technical control. There were many factors which could be brought into the common measure and which could not be added up. Those various factors had to be converted into a common factor and that was money.

Standards must be adaptable. Experts could fix perfect and ideal standards at which one should constantly aim, but he did not think it was a good thing to use them initially.

Mr. Stredwick made many points, but with regard to the comparison of estimates and actual results, in order to get useful comparisons he would suggest that they must adapt the estimates to output and sales. He also asked what savings had been achieved and he referred to differences in the selling price of gas. Making a comparison of that kind was the very thing they must try to avoid, because to try to compare the price of gas at one point of time with conditions existing at the present time meant that they had to establish the conditions, activities and so forth at that time and at the present time and eliminate all those factors before they got down to a comparison of actual efficiency. The savings so far as the Bournemouth undertaking was concerned had been achieved in many aspects of the Group not merely on the manufacturing side, but on the district side as well. That did not take into account savings in much smaller places such as Salisbury, Weymouth, and still smaller undertakings where methods of budgetary control had been adopted. The cost of operating the scheme was usually less than any comprehensive system of job costs.

### Coal Quality

Mr. Hyde had mentioned the question of coal quality. That was taken into account at the beginning of the year. One was told what kind of coal one would get, and there was a conception of the quality of that different kind of coal so that in fixing the standards for the ensuing year one knew what to expect. When one got it, tested it, and recognised it then adjustments were made in computing the actual results, not in the standards themselves, but in analysing the reason for variances from the standards. He agreed with Mr. Hyde that individual jobs could vary greatly, but it had been found that over a week's run it was possible to have standards which over a number of jobs would yield remarkably close results.

There were naturally those who queried whether this technique could be of value to them, but the onus of proof was now on those who, for one reason or another, felt that there was continuing scope for improvement throughout the industry. Those who found it difficult to accept this technique must reassess their views on these matters and check up whether it could not be of some use to them, because if they did not, while they vacillated hoping that increased sales would help them, the sands of time were running out. The accountant had at last something to offer and he had no doubt that the industry would grasp the opportunity.

# Wales Grid Developments

FROM A PRESIDENTIAL ADDRESS TO THE WALES AND MONMOUTHSHIRE JUNIOR GAS ASSOCIATION BY

*RICHARD JONES,*

*Assoc.M.Inst.Gas E. Planning Assistant, Wales Gas Board*

On vesting day, 105 undertakings came under the administration of the Wales Gas Board, 91 of which were manufacturing gas and 14 being supplied entirely with bulk supplies from coke ovens or neighbouring gasworks. Many of the gas producing stations were old and in need of reconstruction. It was, therefore, decided to proceed with the integration of supplies in Wales, the implementation of which would eventually result in about 94% of the total gas requirements in the area being distributed through the North and South Wales gas grids. Particular regard was necessary to the increasing availability of gas produced from coke ovens (which have to satisfy demands for metallurgical coke), to the availability of methane from coal mines and to the possible future availability of surplus gas provided at oil refineries and at chemical works.

The Board's programme, as now planned, provides for an extended and improved utilisation of gas from these sources of supply, thus preventing waste and assisting in conserving coal. Had the Board not made use of this coke oven gas it would have been necessary to carbonise at gasworks an additional 765,000 tons of coal to provide the gas so taken during last year.

When the major grid schemes in North and South Wales are complete a further reduction of approximately 170,000 tons of coal per annum will result immediately. The practice of purchasing gas from outside sources will therefore mean reduced coal carbonisation at gasworks in the Board's area of approximately 935,000 tons per annum which can be expected rapidly to reach 1 mill. tons per annum by reason of increased sales development.

The two major schemes approved by the Board are the South Wales grid, extending from Chepstow and Monmouth in the East to Milford Haven and Pembroke in the West; and the North Wales grid covering the area Llangollen, Deeside, along the North Wales coast to Caernarvon, and into Anglesey. The total length of mains involved in these schemes is approximately 441 miles, of which 195 miles have now been laid.

## South Wales Grid

The South Wales grid is at present being developed in two sections: (a) the Eastern Section extending from Chepstow and Monmouth to Rhondda; and (b) the Western Section extending from Bridgend to Milford Haven and Pembroke. Eventually an interconnecting main will be laid between the two sections to form one major scheme, thus permitting the interchange of flows and thereby increasing the security of supply.

The principal supplies of gas for the Eastern Section are the Board's Pontypool, Cardiff, and other undertakings; the coke ovens of Guest, Keen & Baldwins, Ltd., Cardiff; the National Coal Board's coke ovens at Nantgarw, Coedely, Bargoed, Maritime, and the Phurnacite plant; and the British Benzole and Coal Distillation Company's coke ovens at Bedwas. Additional gas demands will be met by further gas availability from these sources and possibly by supplies from the National Coal Board's projected coke ovens at Cwm. The number of undertakings involved amounts to 24, of which 19 have now been linked. Subject to labour and material being available, this section of the grid will be completed by 1956-57.

Gas supplies for the Western Section will be obtained from the Board's Talbot and other undertakings; the Steel Company of Wales coke ovens at Port Talbot; and the National Coal Board's coke ovens at Tondu. Of the 20 undertakings involved in this section, nine have now been inter-connected; it is anticipated that the programme of work will be completed by the end of 1957, when production at a number of gasworks in the connected area will have ceased.

In addition to mainlaying, work is well advanced on the first section of a major scheme at the Aberavon gasworks, Port Talbot, where coke oven gas from the Steel Company of Wales is purified and compressed. These extensions include the reclaiming of a lake and the installing of two carburetted water gas plants each of 3 mill. cu.ft. per day capacity, reinforced concrete purifiers of 10 mill. cu.ft. capacity per day, a gasholder of 1½ mill. cu.ft. capacity, together with compressors and other plant. Further extensions have been approved by the Board which allow for the duplication of the purification plant and for additional compressors, ancillary plant and buildings all of which it is anticipated will be completed by the end of 1955.

## North Wales Grid

The area included in the North Wales grid project will receive its gas supplies from three major sources: (a) gas produced at the Board's new Maelor works, Wrexham, where the present gas availability amounts to 4 mill. cu.ft. per day, provision being made for further large scale extensions; (b) coke oven gas from the Steelworks of John Summers & Sons, Ltd., Shotton, where 4 mill. cu.ft. of gas per day will be available before the end of 1955; and (c) methane from the National Coal Board's colliery at Point of Ayr, Flintshire, where 0·6 mill. cu.ft. of 980 C.V. gas per day will be purchased; under certain conditions the availability may be increased to 1 mill. cu.ft. per day. This can be treated to yield 1 to 1·65 mill. cu.ft. of town gas equivalent per day by reforming or 2 mill. to 3·3 mill. cu.ft. per day by the cold enrichment of blue water gas.

Work was commenced on sections of the North Wales scheme in May, 1950; nine out of the 21 undertakings affected have already been connected and are in receipt of bulk supplies. Of the 115 miles of main involved, approximately 35 miles have been laid and it is anticipated that all mainlaying work will have been completed within the next few years.

Plans are now well advanced for the installation of a purification, storage, and compression station adjacent to the steelworks of John Summers & Sons, Ltd., and also for a methane treatment, storage, and compression station adjacent to the Point of Ayr colliery. This latter is a new type of development of value to the mining industry and to the gas industry. The importance of its success needs no emphasis. The results obtained and the experience gained will assist in determining the extent of its development elsewhere in Great Britain.

## Only 40 Isolated Units

Out of the original 105 undertakings vested in the Board, 65 will be connected to one or other of the major grid schemes within the next few years. This will leave 40 undertakings (accounting for approximately 6% of the total gas demand in Wales) as isolated units. These, however, have not been forgotten, and already investigations are proceeding into various methods of affording supplies, alternative to orthodox practice. Indeed, one of these 40 Whitland—is well known as having been converted to liquified petroleum gas; the process, which pro-

*Concluded on p. 179*

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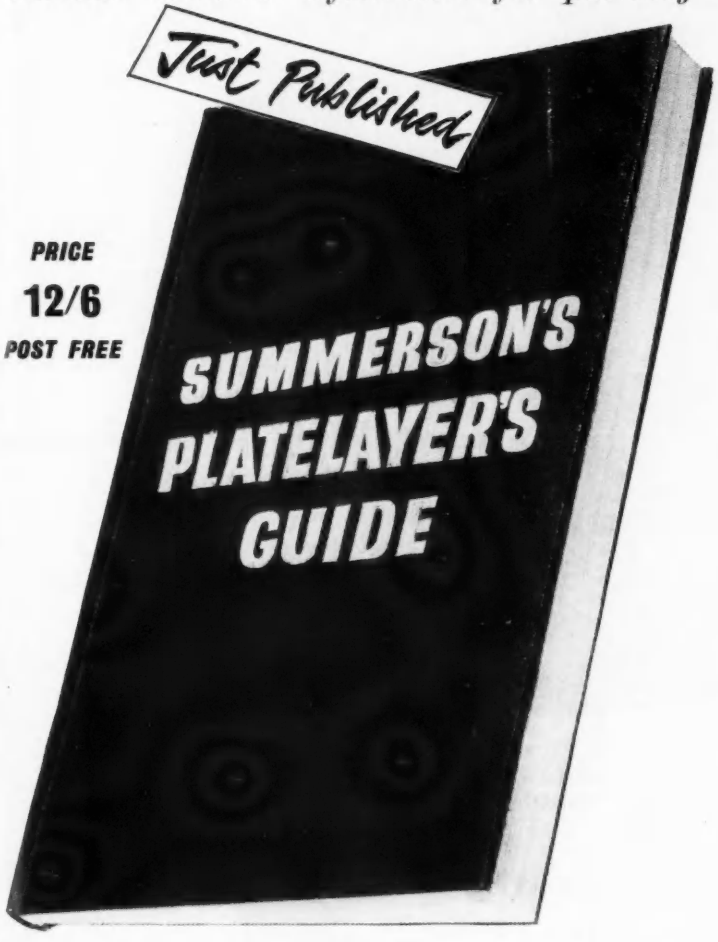


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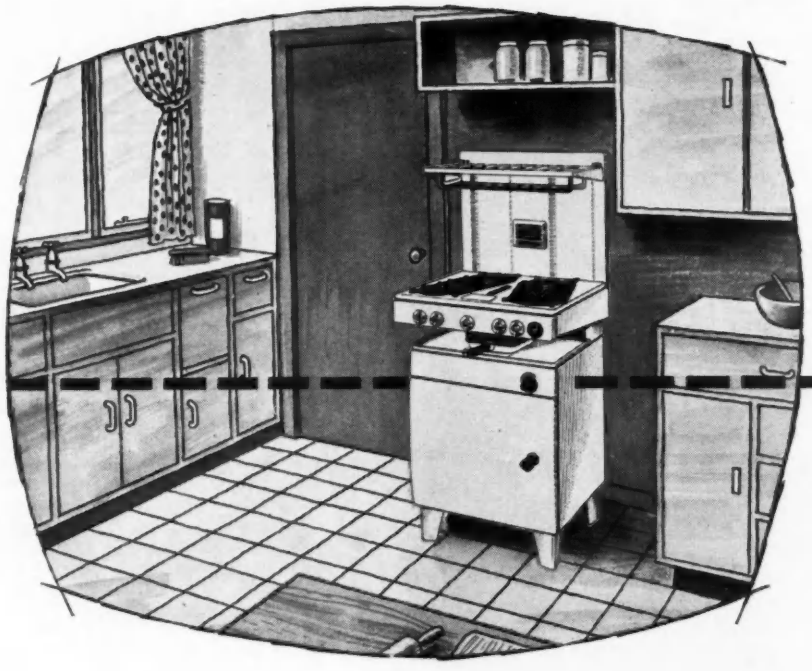

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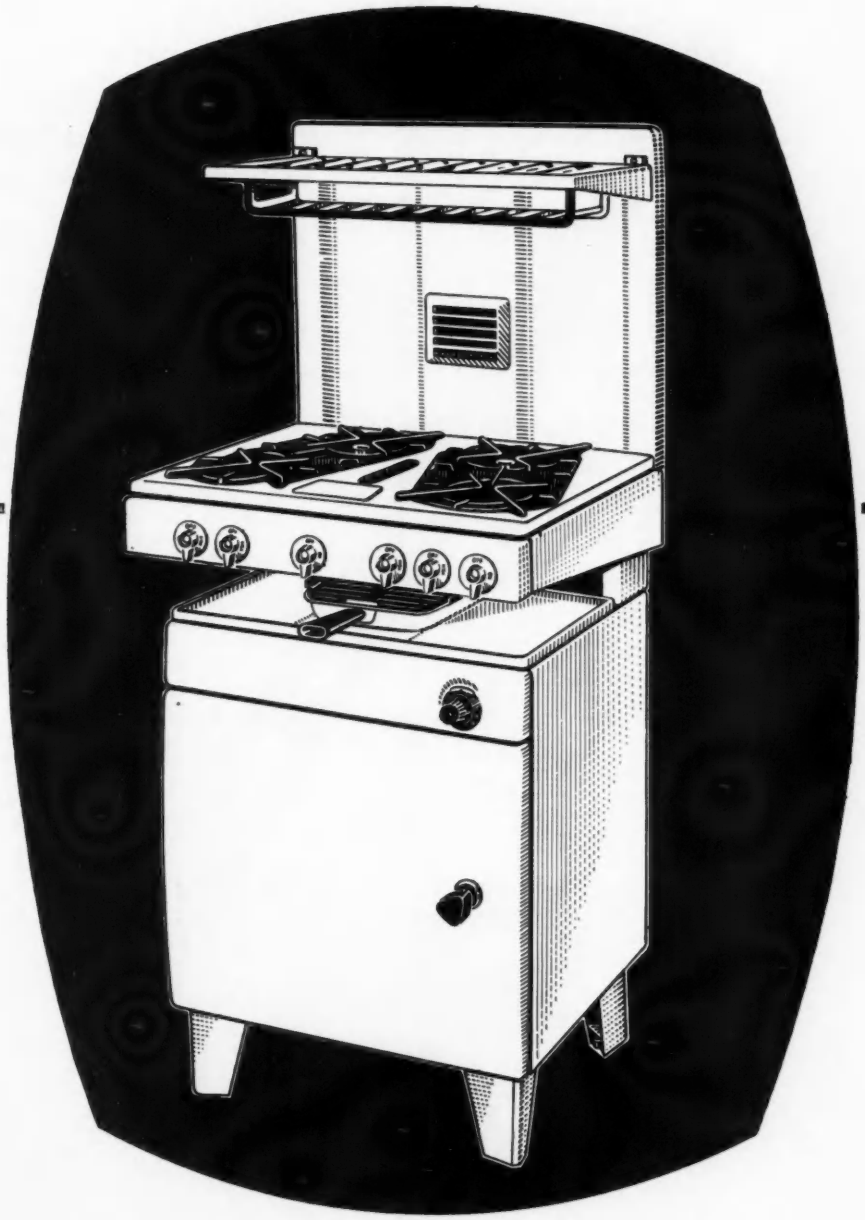

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vid s a first-class supply to consumers, is technically sound, but its adoption for other undertakings is dependent on the price of liquified petroleum gas ex refineries, which at present is too high. Certain of the 40 undertakings may be connected up eventually to one of he major grids; others may be integrated with adjacent undertakings; while some may be afforded supplies by other methods also under consideration.

Some of the problems now being tackled are the possibility of treating and harnessing tail gases from oil refineries, methane from coal mines (other than Point of Ay ) and also gases which are formed as by-products from certain chemical processes. The potential availability of gaseous fuel in the Board's area is considerable and offers scope for large-scale development. The first five years of nationalisation of the gas industry has been a period of maintenance and improvement of production by orthodox methods, the development and improvement of service to consumers, large scale planning and partial implementation of the work involved. The second five year period will see the effect of this planning together with further implementation and will mark a new phase in the Board's activities.

The industry in Wales is in process of rapid change; schemes hitherto in the planning stage are now being put into effect and those who will have to play their part in ensuring the success of these new developments with the diversity of problems that will ensue, must be prepared to accept new responsibilities.

The period will be one of considerable expansion, and to those who are imbued with faith in the industry and who are prepared fully to play their part, the opportunities afforded will be many. The work involved will require a high degree of technical skill, embracing gas production, distribution (including mainlaying both for long distance transmission and local development), the expansion of the industrial and commercial field, the promotion of gas and gas appliance sales, and generally the advancement of the industry in line with the development envisaged. Particularly will this apply to the younger men who should adapt themselves to meet the altered circumstances that will result from the changes now taking place.

---

The Scottish Fuel Efficiency Committee has urged the National Coal Board to introduce seven differently coloured grades of coal—red, white, grey, blue, green, brown, and black—to ensure that the consumer receives the colour he orders. The Committee suggests that the coal be washed in these colours, which would come from a clay substance. Several European countries have already introduced this system of grading.

## WEST'S GAS

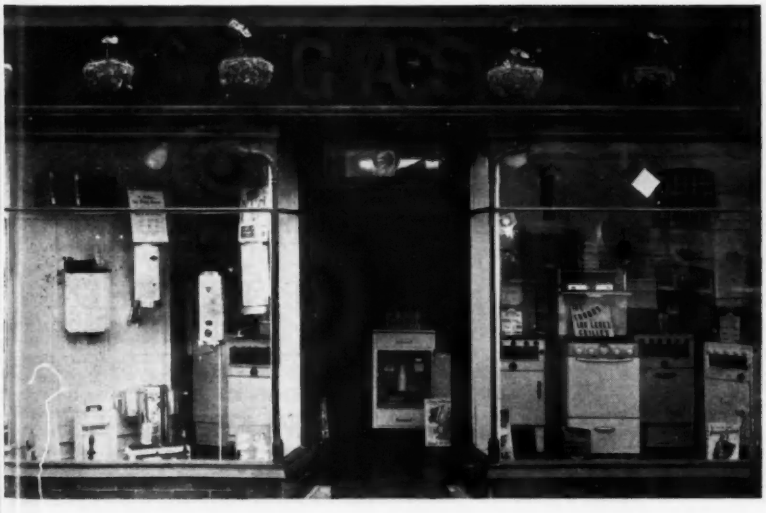
The June issue of *West's Gas* carries an article by Sir Frederick West in which he explains to the uninitiated 'Where the money goes'. He had noted a general difficulty on the part of those not familiar with the language of accountancy to understand the modern balance sheet, particularly in connection with recent talks on productivity. The question put to the employer was, 'And what are you going to get out of all this?' Sir Frederick has averaged and analysed the workings of his Company over the last seven years and presents the results graphically in the form of a circle split up into sectors proportional to the expenditure under several headings and balances realised per pound sterling of annual turnover. The figures are also tabulated and show that out of every pound of turnover 12s. 2½d. was expended in the purchase of materials, 2s. 8½d. in internal wages and salaries, 2s. 10d. in erection (a total of 5s. 6½d. in wages and salaries), 1s. 3½d. went in standing and administration charges, leaving a gross balance of 11¾d. of which 6d. went in taxes, 4¼d. to reserves and 1½d. in dividends to shareholders. These items are fully explained in the text.

The main technical article, prepared in collaboration with Spencer Bonecourt & Co., Ltd., sets out the principles of the design of the waste heat boiler. Of particular interest is the trend towards higher working pressures. Reference is made to recent papers by Mr. T. Nicklin, of the North Western Gas Board, and Mr. J. Parker, of Bristol. The limiting pressure of the conventional design appears to be 250 lb. per sq. in. For steam pressures of 300 lb. per sq. in. and over designs have been developed incorporating extended heating surface in the form of an economiser and a schematic drawing of such a design is reproduced.

The other feature article is an engaging story by Colonel Middleton-West on his visit to Malta G.C. where he spent three months last year as Medical Superintendent of the King George V Merchant Seamen's Memorial Hospital. 'West's Piling' describe recent foundation work at Greenhithe, Kent, where piles 40 ft. long were driven inside an existing building in limited headroom in some places no more than 20 ft. 6 in., at Bristol, Stapleton Road Gasworks, and at the Pitsford Reservoir near Northampton.

Social and news items include a continuation of the 'My Job' series with short articles by Mr. A. Lees, machine shop foreman, who has had 40 years service at West's, Mr. S. Rhodes, a fitter, Mr. W. Davidson, a plater, with 41 years' service, and Mr. R. Melling, an oxy-acetylene welder; and a full report of the veterans' inaugural meeting to which we have already referred. West's Social Society reports a successful season last winter and arrangements, which are in the hands of a strong representative committee, are foreshadowed for next winter's programme. Meetings of the works committee and of the joint production committee are reported. 'References' calls attention briefly to articles which have appeared in the technical Press during the three months to the end of April and which are deemed of interest to carbonising engineers.

## TWO DELIBERATE MISTAKES

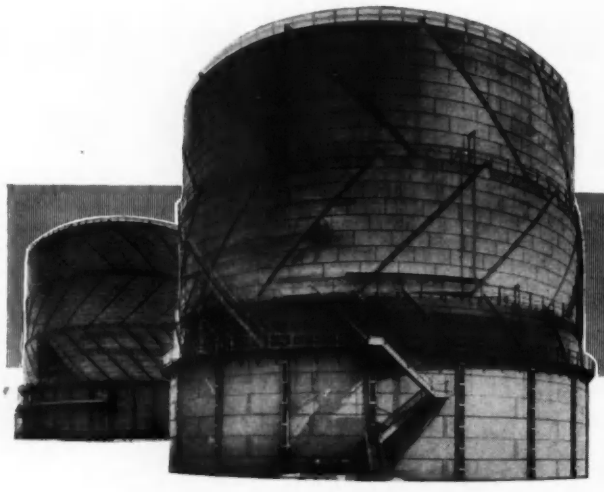


Newtown, Montgomeryshire, held a shopping week after Mr. H. Evans, Manager of the Newtown undertaking of the Wales Gas Board, had suggested it to the Chamber of Trade.

One of the events was a window spotting competition in which each shop window had in it one deliberate mistake. In one window of the gas showroom, here photographed, the Cannon A 125 eye-level cooker was deserибed as the low-level cooker, and in the other window a cookery book was apparently written by R. L. Stevenson.

Approximately 50% spotted the cooker but less spotted the cookery book. The search for the deliberate mistake encouraged many people to inspect the cooker very carefully and useful publicity resulted.

*General view of the double-fronted gas showroom window display at Newtown.*



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# Profit on Belfast Corporation Undertaking

Belfast Corporation Gas Department made a net profit of £69,717 during the year ended March 31—£64,358 more than in the preceding year. As well the Department produced a much higher yield of gas per ton of coal than ever before. During November and December last, however, the exceptionally mild weather caused gas consumption to fall far below the normal level, and the year's total output was lower than in the previous year.

The annual report and statement of accounts which were presented to the Gas Committee on June 18 by the Engineer and Manager, Mr. J. L. Hyslop, stated that the chief item responsible for the size of this year's profit was a saving of approximately 12,000 tons of coal, which would have cost more than £50,000. This was brought about by the higher yield—19,038 cu.ft. per ton of coal.

Commenting on the rise in coal prices, Mr. Hyslop told the Committee: 'In addition to the increase during the financial year we already have had increases totalling 3s. 9d. per ton since the current year started, which will add a further £45,000 per annum to our costs. Prices have risen to such an extent that our supply is now costing us considerably more than four times what we paid in August, 1939.'

He said that the very substantial surplus with which they had finished the year did not reflect the present state of their economy because the heavy increases in the cost of coal and in wages had completely upset the balance. 'Our coal price is already 5s. 6d. per ton above last year's average, and I estimate that these two items alone—coal and wages—taking into account only the increases already established, will cost us at least £115,000 more than last year.

Mr. Hyslop pointed out that most of the materials and appliances they used had recently been increased in price, and said that it was expected that additional capital charges would add approximately a further £10,000 to their burden. Present indications were that with their present scale of charges they would next year show a substantial deficit, at least equal to last year's surplus. Mentioning that their present charges for gas were lower than in practically any other comparable undertaking Mr. Hyslop said that it was desirable that an increase should be avoided at present if at all possible.

### Capital Charges Increase

Referring to the heavy capital expenditure they had to incur in recent years, Mr. Hyslop said that as a result their loan charges were increasing rapidly year by year and were having a substantial effect in increasing the cost of gas. For 1953-54 capital charges amounted to £185,964, an increase of £31,321 compared with the previous year, and equal to 8.36d. per 1,000 cu.ft. of gas sold. There would be a further substantial increase for the current year.

Mr. Hyslop said that revenue during the year was £2,431,485 and expenditure £2,183,185, giving a gross profit on the year's trading of £248,299, an increase of £99,318. After deductions there was a net profit of £69,717. Added to the balance of £39,964 brought forward from the previous year there was a total of £109,681 available. From this Mr. Hyslop recommended that a revenue contribution for capital purposes of £18,683 be made to meet the cost of small items of a capital nature, leaving a balance of £90,997.

He recommended that charges for gas be allowed to remain at their present level in the meantime. The special reserve into which he proposed an allocation of £85,000 be made, should be used to make up the anticipated deficit at the end of the year. The report and statement of accounts were adopted.

## Gas for Public Lighting

Standard ratings for street lighting introduced by the North Western Gas Board from July 1 will result in increased charges to some towns but lower bills for others. The new ratings are the outcome of extensive consumption tests over a long period and follow appeals by the North Western Gas Consultative Council for standardisation in order to bring about equality of treatment.

One of the sharpest reductions will be that of Southport whose representative on the Consultative Council, Alderman William Tattersall, has repeatedly urged that the Board's tests be hastened. The saving here will be £4,091 a year (21%), rising to £4,734 if the town elects to be charged on the block method. Bootle, in the Liverpool Group, will face an increase of £3,791 (a jump of 102%) while Wallasey will pay £4,875 (35.4%) a year more, reduced to £3,900 on the block charge.

Liverpool will pay £18,640 a year more (54%), reduced to £10,792 on the block charge. Manchester will pay £16,457 a year more, reduced to £1,999 on the block charge. The pattern of both increases and decreases shows a less violent trend looked at from the viewpoint of the whole area.

## MR. THERM WINS HIS STRIPES

When the Northern Command Tattoo opened at Roundhay Park, Leeds, there were 2,500 men under canvas in the adjoining Elmete Hall Camp and at midnight after each performance the N.A.A.F.I. provided every soldier with tea and a hot meal—cooked by gas.

In addition to the N.A.A.F.I., the sergeants mess and a cookhouse for 700 men were temporarily equipped. All told, 30 second-hand gas appliances were installed; a 6 in. supply being laid on the surface for 600 yds. through the woods from a temporary meter house in Wetherby Road, built by the R.E.

The Leeds Group of the North Eastern Gas Board received the order on April 21 and by May 8 it had fully equipped the N.A.A.F.I. with cookers, ranges, hot cupboards, vegetable boilers and water boilers, all ready to serve the advance party of 600. By May 15 similar equipment had been installed in two additional messes (sergeants and 750 men cookhouse).

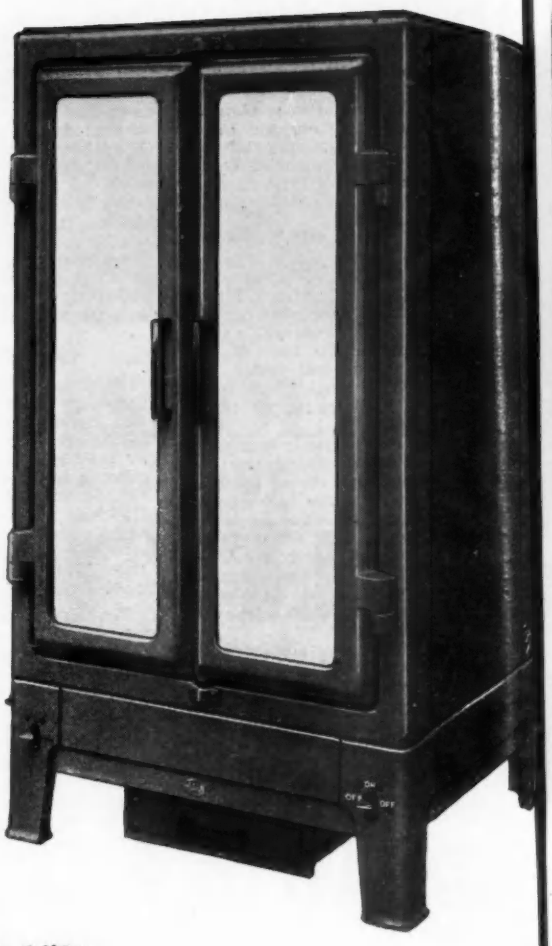
The Boiling Water Division of Stotts of Oldham co-operated with the Board by supplying on loan five No. 3 instantaneous water boilers each providing 10 pints of boiling water per minute.

Gas was chosen for this important occasion due mainly to its speed and adaptability and there is no doubt in the minds of the Northern Command that Mr. Therm has earned his 'stripes.'

*The N.A.A.F.I. cookhouse at the Northern Command Tattoo, showing the gas equipment supplied and temporarily installed by the Leeds Group of the North Eastern Gas Board. The appliances included a 30-gal. vegetable boiler, a two-pan fish range, three single-oven ranges and two Stott No. 3 instantaneous water boilers.*

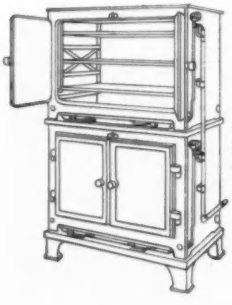
# Roasting Oven

## that makes the most of every inch of cooking space

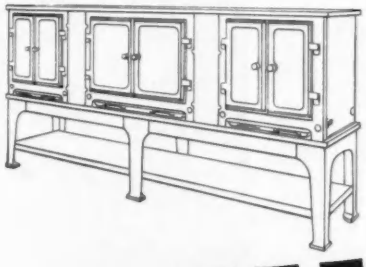


This large Roasting Oven . . . one of an extensive range of Main designs . . . has an interior oven size 30″ wide x 30″ deep x 48″ high. Efficiently heated by two atmospheric burners the oven has enamelled steel linings and is fitted with three grid shelves carried on removable side hangers. The appliance is strongly constructed, mainly of cast iron, and is finished externally in Dapple Grey Vitreous enamel with white enamelled door panels and bakelite door handles. The oven is mounted on enamelled cast-iron feet and the storage pan under the oven is of copper with an enamelled cast-iron front.

## other types of roasting oven



*A Vertical Battery of two ovens on a short stand.*



*An Elevated Battery of roasting and general-purpose ovens.*

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# NORTH THAMES JUNIORS AT CAMP

*The camp officers, drawn from the Board's staff, who are responsible for the efficient running of the camp. Left to right, back row: E. V. Wright (camp chief), T. Westbrook (entertainments), E. Holman (housemaster), W. Yexley (games and swimming), S. Murray (banker), A. Smith (housemaster) and E. Dodimead (housemaster). Front row: A. Wettone (catering and entertainments), R. Platt (orderly), E. Tallboy (first aid and tuckshop), and G. Foat (housemaster).*

Mixed weather, typical of this year's summer so far, was experienced at the annual camp for junior employees of the North Thames Gas Board, which for the second year running was held at the Isle of Thorns in Ashdown Forest. The weather did not damp the spirits of the 82 campers who took full advantage of this well-equipped permanent camp—a 100-acre site administered by the Manor Charitable Trust. It includes an open-air swimming pool, tennis courts, football and cricket pitches, and a nine-hole golf course. In addition to a recreation hall and a well-appointed messroom, the camp provided a spacious, parquet-floored building (known as the 'Barn') specially designed for games indoors (even football) when the weather was bad.

This camp, instituted many years ago by the former Gas Light and Coke Company, provides, for a nominal cost, a week's enjoyment of fresh air and fun for the Board's junior employees. Transport is provided, and outings and sports days arranged.

---

**When the Llandudno U.D.C.** celebrated the centenary of its institution at the beginning of this month, the gas undertaking formerly owned by the Council and now a unit of the Wales Gas Board, specially dressed its showroom windows and took part in the procession with a fiesta-like oversized model of a chef's head supported on the shoulders of a sandwich-board man.

**Scottish Juniors (W.) Golf.**—The annual golf outing of the Western District was recently held at the Hilton Park course, Glasgow. First prize was won by J. Henderson (Dumbarton) with 71; J. Brown (Crane, Ltd.) won second prize and one for the best holes; W. Hogg (Kelty) was third. John Adams (Thomas Glover & Co.) won a hidden holes prize. The presentations were made by Mr. L. Gardner, Captain of the Scottish Association Golf Circle.

## Miners' Pensions and Benefits Schemes

The total investments in the miners' pension, fatal accident and injury benefit schemes have now reached £25 mill. They are continuing to grow at the rate of about £8 mill. a year, and may eventually reach £250 mill.

These facts are given in the reports and accounts for 1953-54 of the four special funds established by the National Coal Board and the Unions, published recently. They are the Mineworkers' Pension Scheme, the two industrial injuries supplementary benefit schemes and the Special Fatal Accident Scheme.

The pensions scheme, which it is expected will eventually provide retirement pensions for 150,000 former miners and benefits for up to 130,000 widows and children, at present covers 79% of those eligible to contribute. The proportion in the different coalfields varies from 92 to 55%. Following joint representations by the Coal Board and the National Union of Mineworkers to the Minister of Fuel and Power, the Minister has expressed willingness to issue regulations which will enable the scheme to be amended to make membership obligatory and to authorise the compulsory deduction of contributions from wages.

The Coal Board also operate a scheme—known as the 'Old Cases' scheme—for the benefit of those who suffered injury before nationalisation, and during the year £1,013,971 was paid out. This scheme has made grants totalling more than £6 mill. in the last 5¼ years.

The Coal Board have increased their contribution from 50 to 75 per cent. of the cost of the scheme. During the year 540 deaths were recorded, and a total of £84,585 was paid out in benefits.

The document does not cover the N.C.B. Staff Superannuation Scheme, which is the subject of a separate report to be published later.

## North Wales Juniors

The Ladies Day of the Wales and Monmouthshire Junior Gas Association (North Wales Section) was held on June 26. The party assembled at the Rhyl gasworks where transport was provided by the kindness of Mr. O. P. Cronshaw, Engineer and Manager of the Rhyl undertaking of the Wales Gas Board. The party was conveyed to the Rhyl water works for an inspection of that undertaking and the history of the water undertaking and explanation of the plant was given to the members by the Station Engineer, Mr. Davies.

A journey over the Denbigh Moors by coach to Denbigh then followed. On arrival the party were entertained to tea by the Engineer and Manager of the Denbigh undertaking of the Wales Gas Board, Mr. R. D. Briggs.

Proposing a vote of thanks to the Rhyl undertaking for the transport and to the Denbigh undertaking for providing the tea, the Chairman of the Section, Mr. C. Butler, of Rhyl, said he regretted that a certain amount of apathy seemed to have crept into the North Wales Section, as was apparent by the small number assembled, but some of that might be due to the date, which was inclined to clash with holiday periods and other functions and consideration would be given to changing the date in future. Mr. Butler stated that he had now come to the end of his term of office and he thanked all members for their support during the year.

Mr. J. Woodcock (Colwyn Bay), his successor, seconded the vote of thanks.

Mr. Briggs suitably replied and called on all members of the Association to support future meetings. The party were then taken back to Rhyl where a visit to the Circus in the Pavilion ended the day's activities.

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## Management Accounting

The Council of the Institute of Chartered Accountants in England and Wales has issued to all its members a booklet entitled 'Management Accounting—an outline of its nature and purpose.' Management accounting is the application of accounting skill to business management. Since good management of physical and financial resources is essential to success in every business, the help which the chartered accountant can give to businessmen needs to be emphasised.

For some years many of the larger businesses have employed chartered accountants, either as members of their staffs or by using the services of practising members of the profession, to advise and guide on costing, planning and budgeting and on the daily control of business activities.

The contribution the accountant can give to management and thus to the success of the business should, however, be more widely recognised and used by smaller businesses which perhaps have regarded accounting records as an evil necessity only for statutory or taxation purposes. The object of the new booklet is to remove some misunderstanding about the nature of management accounting, stimulate active interest in its future development, and encourage businessmen to make the fullest use of accounting information in the day-to-day management of their businesses. Copies of the booklet may be had from the Institute offices at Moorgate Place, E.C.2.

## GAS AT ESSEX COUNTY SHOW

*This photo is of the Eastern Gas Board's display at the Essex County Agricultural Show held at Wivenhoe Park, Colchester, on June 10-11. The design and erection of the display was again carried out by the Ipswich Division in co-operation with the Norwich Division of the Board and was repeated at the Royal Norfolk Show, with only slight alterations to the individual appliances displays, thus effecting considerable economies.*

## B.G.S.A. Secretary in Scotland

The General Secretary of the British Gas Staff Association, Mr. F. C. Henfrey-Smith, has recently visited a number of Scottish branches of the Association, accompanied by the Northern Area Organiser, Mr. A. L. Cockrill. Mr. Henfrey-Smith addressed meetings at Glasgow, Aberdeen, Dunfermline, and Stirling, and was present at a special meeting of the Association's Scottish Area Council where representatives of all the branches reviewed the affairs of the Association in Scotland and the conditions of service which apply there. He also called at a number of gas undertakings, making or renewing acquaintance with the management and greeting members.

Mr. Henfrey-Smith found among Scottish gas staffs a keen interest in the future of the industry and a desire to make full use of the consultative committees which are now being established. He informed his hearers that if the estimated increase in Scottish gas sales of 30 mill. therms per annum is to be realised by 1960 all employees must enthusiastically advocate the use of gas and work with a will. In return they should be kept fully in the picture regarding the Board's plans, and the B.G.S.A. would expect full consultation on the proposed discontinuance of manufacture at a number of works.

B.G.S.A. members in Scotland generally feel that negotiations are too protracted and that the settlement of their complaints could be reached more quickly if a greater measure of responsibility for industrial relations devolved upon local management.

## The Poor Relation

Too often in the past, our educational institutions have tended to look upon the technical student as a poor relation.

That was an attitude of mind we could no longer afford, said Lord McGowan, K.B.E., who was speaking at a luncheon to mark the coming-of-age of the Copper Development Association. He was glad to say, however, that it was now recognised that proper technical training before a man started his working life, and continuous training during it, were two of the most important keys to higher productivity.

Also, from experience gained on his frequent visits abroad, he believed that commercial salesmen in many industries must have their work supplemented by technicians to show customers how best to use the products with which they were dealing. He made a plea, therefore, for a closer association of science with industry. The C.D.A. could well congratulate itself on the work it was doing in that sphere.

Lord McGowan remarked that because he had been a friend of the C.D.A. since its inception he was well aware of how successful it had been during the past 21 years. The membership had risen from 25 to 34, and as the years passed, more and more people, not only in this country but in many other countries, had come to recognise in the C.D.A. a guide, philosopher and friend. In more than one field, today, the Association was asknowledged as a leading authority.

## Welding Research

The ninth annual report of the British Welding Research Association (1953-54) records again an increase in membership, with the income of the Association now in excess of £100,000. The Association has purchased a Sciaky three-phase spot welding machine and a Baldwin-Tate-Emery 400,000 lb. universal testing machine. This additional equipment will appreciably augment the facilities available at the Research Station at Abington.

A code of practice has been published on the projection welding of mild steel and a revised code has been issued on the spot welding of low carbon steel. A committee has been set up to examine the testing of resistance welds, since there is a lack of uniformity in test methods used for evaluating the quality of resistance welds.

Fatigue tests have been completed on several different designs of thin-gauge box section girders when loaded about both major and minor axis. These sections are of the type used for motor-car chassis, and tests are now in progress using alternating torsion.

Brittle fracture of welded structures continues to receive attention. Docherty's classic experiment on 'size effect' in which, with successively smaller notched specimens, failure suddenly changes from brittle to ductile, have been repeated and can be explained.

## Take a Pinch of Salt . . .

The West Midlands Gas Board is to be asked to give its salesmen cookery lessons so that they can better advise housewives in buying cookers.

Mr. A. V. Horsfall, Sales and Service Manager, promised in Birmingham recently to ask the Board this. He was presiding at a conference of 200 housewives called by the Board and the Institute of Good Housekeeping.

Mrs. L. Wallington, Chairman of the Birmingham Housewives' League complained to him that a Gas Board salesman she visited appeared 'dumb.' He knew nothing about the cooker I wanted,' she said, 'so I left without it.'

Mr. Horsfall: 'It might be a good idea to give the salesmen cookery lessons—though I don't know what they would say about it. Perhaps they would find it very interesting. Salesmen in the Board's showrooms are 'technically expert' but naturally they do not know much about cooking.'

## MODERN LARGE SCALE CATERING

*Mr. F. L. Woodcock, Gas Liaison Officer, Electrolux, Ltd., Mr. J. C. Morris, Director, Benham and Sons, Ltd., and Mr. A. O. Russell, Sales Manager, Large Apparatus Division, Radiation Group Sales, Ltd., were among representatives of manufacturers of large-scale catering appliances invited by Miss Lovell Burgess, Lectures Officer, The Gas Council, to see the Gas Council's film strip "Modern Large-Scale Catering" in Mr. Therm's Mini-Cini at Gas Industry House on July 2.*

# TINGLEY AND SMOKE ABATEMENT

Members of the Yorkshire Divisional Council of the National Smoke Abatement Society were the guests of the North Eastern Gas Board on July 12. They paid a visit to the new gasworks at Tingley, near Wakefield, where the £1 mill. extensions are expected to be completed by the beginning of next year. This will bring the total cost of the work at Tingley to £3 mill. the visitors were told. The new extensions include duplicate carbonising plant, coal handling plant, purification plant and ancillary works, and the present daily output of 7 mill. cu.ft. of gas will be doubled for compression into the grid system.

Mr. H. Johnston, Chief Engineer to the Gas Board, explained that apart from the increasing demand for gas, the main reason for the extension was to substitute for loss of gas as the result of the closing of smaller works, which should lead to more economic production and distribution. In addition to the 17 smaller stations already closed, others would be closed, including Elland, Sowerby Bridge, and Hellifield. Referring to the aims of the Gas Board and the work of the Society, Mr. Johnston said while the Society was endeavouring to obtain a cleaner atmosphere for the health of the public, the Board considered that it was entirely wrong in the economic interests of the country that coal should be burned raw.

Mr. J. Goodfellow, Secretary of the Yorkshire Council, declared that the progress being made at Tingley was what the National Smoke Abatement Society was wanting, for the smaller gasworks in the past had often been sited literally on the population's doorstep, causing increasing pollution.

Mr. Norman Hudson, Chief Commercial Officer to the Gas Board, referred to the new coke marketing scheme due to start in October which would enable people residing in remote parts of the country to obtain supplies of coke for domestic fires. The Board would undertake to deliver coke to the nearest railway stations and the country dweller would pay only the same price as consumers living in a town with a gasworks. The scheme would cost the Board a 'bit of money,' but it was anxious to get steady business. He expressed his concern about some fire appliances which were being sold at the present time which were not really all-purpose grates. Many grates had only a small air space, and had not the required width between the bar and coke could not be burnt efficiently in such grates, yet they were styled 'modern grates' and were being sold as 'all-purpose' grates. He maintained that coke could always do the job cheaper and better provided the right appliance was used. He referred also to the new appliances produced by the gas industry and manufacturers on show in the North for the first time at the North Eastern Gas Board's stand at the Great Yorkshire Show at Harrogate. The new boiler was a combination of the normal heat boiler and a steam flashing boiler.

## Gas Ban Opposed

A recommendation by the Newport Chief Fire Officer, Mr. B. Robinson, that gas appliances in the local market should be banned, has been turned down by the Newport Town Council.

Mr. J. F. Rust, General Manager of the Newport undertaking, Wales Gas Board, recently protested at a meeting of the Newport Chamber of Trade that the chief fire officer had recommended that only electrical appliances should be used to heat stalls in the market and that the use of gas-flame appliances should be forbidden.

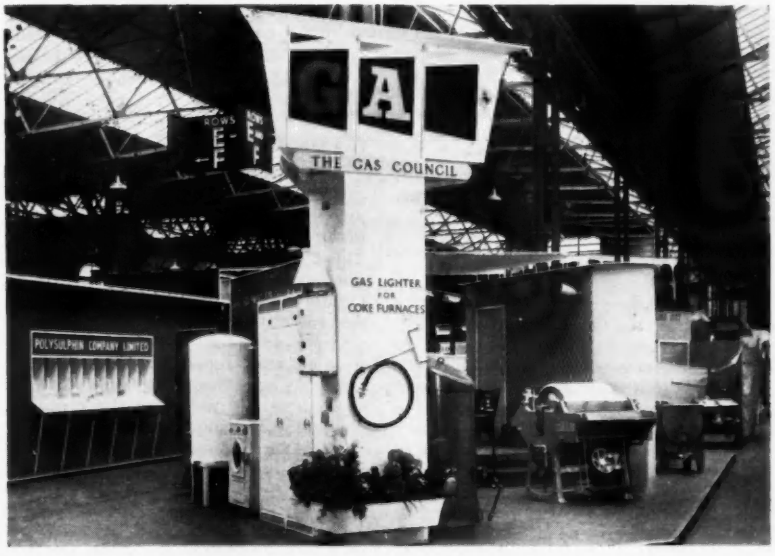
Mr. Rust had written to the fire chief pointing out that this appeared to be an unwarranted interference with the gas undertaking's business and the freedom of choice which had always been enjoyed by market tenants.

The Newport Town Clerk, Mr. J. G. Iles, this week published a letter he had written to Mr. Rust in which he said the market and baths committee would recommend to the Council that market tenants be permitted to install either gas or electrical appliances on condition that a suitable guard be provided to the satisfaction of the Borough Architect.

# PRODUCTION AND LAUNDRY EXHIBITIONS

Two exhibitions were run concurrently at Olympia, London, one covering Production and the other the Laundry and Allied Trades. On the stand of the Scientific Instrument Makers at the former the Sigma Instrument Co., Ltd., of Letchworth, was showing a number of instruments concerned with gas making. The Sigma Mark V Recorder for indicating and recording pressure or vacuum has been specially designed for gas industry requirements of reliable service in adverse and corrosive conditions. Other instruments included the recording calorimeter Mark II, specific gravity recorder No. 7, Wobbe Index recorders, Sigma-Kent recorder, and Telemeters for distance recording and indicating of calorific value.

*Sigma Mark V recorder for indicating and recording pressure or vacuum. Note the manometer tubes on the left and the 3½ in. operating diaphragms on the top.*




*General view of the Gas Council stand at the Laundry Exhibition.*

On the same stand Dawe Instruments, Ltd., had on view their Type 1101 Ultrasonic thickness gauge for the checking of wear on wall thicknesses of retorts, pressure vessels, etc. The instrument is available in the range of 0.02 in. to 12 in. and accurate readings can be taken by quite unskilled users.

In the Hall housing the Laundry Exhibition the Gas Council was represented, and had on view a Potterton-De La Rue gas fired boiler in conjunction with a Bendix washing machine, Righton drying cabinet, Keith Blackman gas irons, a boiler by Controlled Flame Boilers, Ltd., and Electrolux laundry equipment, and an Ascot instantaneous water heater.

Other exhibitors with their own stands were:—

Thomas Broadbent & Sons, Ltd.—Hydro-extractors and centrifugals.

Crane, Ltd.—A range of cast-iron and malleable valves and fittings.

Davey Paxman & Co., Ltd.—Photographs of many types of industrial boilers.

Dewrance & Co., Ltd.—Valves and the Yarway impulse steam traps.

# IN PARLIAMENT

### *Gas Turbines*

Gas turbines came under discussion when Mr. G. Darling (Lab., Hillsborough) asked the Minister of Fuel and Power what information had been gained from the experimental gas turbine locomotives operated on his behalf by British Railways. Mr. Joynson-Hicks, Parliamentary Secretary, replied that the only such locomotive which was being developed by the Ministry was still under construction and not yet ready for trials. Mr. Darling, persisting in his questions, wanted to know whether the experiments proceeding at the Fuel Research Station had given satisfactory results. Mr. Joynson-Hicks said that they had, whereupon Mr. Darling asked whether information relating to gas turbines in electric power stations, giving information on performance, types of fuel used, costs, thermal efficiency, etc., could be made available. He was told that the Minister was kept informed of the progress made in the development of the oil-fired gas turbine (which was not yet in operational use) for which the British Electricity Authority was responsible, and was referred to that body for detailed data.

Mr. Joynson-Hicks was still in the saddle when Mr. A. G. Bottomley (Lab., Rochester and Chatham) asked the Minister if he would give a direction under Section 7 of the Gas Act, 1948, to the South Eastern Gas Board not to operate the proposed increased charges for gas consumers in the area. When told that no such direction would be given, Mr. Bottomley asked plaintively: 'Is there nothing that the Government can do to stop the constant rise in the cost of living?' Whether the resultant silence was due to scorn or hopelessness we shall never know.

### *Not Redundant*

Questions regarding the number of officials still serving in the Gas Coke Directorate, the premises they occupied, their cost, and the reasons for retaining the directorate in view of plentiful coke supplies, were asked by Mr. G. Nabarro (Con., Kidderminster), who ended the barrage by asking, quite baldly, whether the Minister would close down the Gas Coke Directorate forthwith.

In a written reply, Mr. Joynson-Hicks explained that there was now no coke director, but that supervision of gas coke distribution was in the hands of the Gas Council and gas board employees who worked in their own offices, 'with my right hon. Friend's authority.' This did not involve the Council or the boards in any extra expense, since most of the work would have to be carried out in the normal course of business.

This very satisfactory answer brought murmurs of appreciation, mingled with the sighs of relief which carried faintly from Gas Industry House.

### *Pricing Policy*

In response to a question from Mr. W. W. Hamilton (Lab., Fife, West), asking whether the Minister of Fuel and Power would give a general direction to the National Coal Board to sell its fuel to private industry at not less than its economic cost of production, Mr. Joynson-Hicks explained that the pricing policy of the N.C.B. was designed to take into account the costs of production.

This prompted Mr. W. H. Mainwaring (Lab., Rhondda, East) to ask whether, in view of the dissatisfaction expressed by some of the fuel boards in respect of prices charged by one to the other, he would consider introducing legislation for the appointment of some kind of price tribunal to determine the price levels to operate between the coal, gas, and electricity boards.

Mr. Joynson-Hicks: No.

The importance of coal and the saving thereof encouraged Mr. R. R. Stokes (Lab., Ipswich) to ask how much of the precious stuff could be saved annually if all industrial buildings were insulated on the inside with suitable insulating material.

Which is rather like asking the length of a piece of string. But Mr. Joynson-Hicks, whose advisers seem to keep him well insulated against such awkward draughts, came up with the interesting information that the insulation of a million square feet of factory roofs and walls in suitable cases might save up to 6,000 tons of coal a year. As for how much could be saved if *all* industrial buildings were so treated, he merely said —with commendable restraint—that no such estimate could be made.

### *Higher Technological Education*

A statement upon higher technological education likely to cause pleasure in many quarters was given by Mr. R. A. Butler, Chancellor of the Exchequer. This concerned the response to his invitation, in July, 1953, to the University Grants Committee, in consultation with the universities and colleges concerned, to work out plans for the development of higher technological education outside London. Mr. Butler explained that the Committee had examined the proposals received with the assistance of their Technological Sub-Committee, and had reported on them to him. After considering their recommendations he had approved plans for development outside London, in which the main centres would be Glasgow, Manchester, Leeds and Birmingham, but in which provision was made also for developments elsewhere. These developments would take place at institutions already in receipt of recurrent grants on the recommendations of the Committee. To increase the number of university institutions concerned with higher technological education would involve a dispersal of effort which the committee did not advise. It had therefore been unable to recommend a change in the status of Bradford Technical College.

The implementation of these plans, and those for the Imperial College of Science and Technology, would necessitate some increases in the resources available to the University Grants Committee, both for recurrent and non-recurrent purposes, in the last three years of the quinquennium 1952-57. Mr. Butler said that he was now considering the timing of these developments, some of which, he hoped, would start in the next academic year, and he would in due course make a further statement.

### *Final Stages*

When the Gas and Electricity (Borrowing Powers) Bill passed its final stages on Friday, Mr. G. H. G. Bing (Lab., Hornchurch) and Mr. C. L. Hale (Lab., Oldham West) each hurled some darts at the Minister, the former referring to the Money Resolution as 'badly drafted and unclear in its meaning' and maintaining that this was one occasion on which the House ought not to accept the decision of the Committee in the matter.

Mr. Hale, speaking on the same resolution, seemed surprised that the Minister, after paying 'most lavish tributes' to the electricity and gas industries, agreed to appoint a committee to review the whole operation of nationalised electricity and nationalised gas. 'It is very extraordinary that the Minister should come forward and say, "I want to double the amount of loans available to both these nationalised industries, and at the same time I propose to conduct an inquiry to see that they are being properly run."' One would have thought, continued Mr. Hale, that before being asked to give complete *carte blanche* for a sum of £900 mill., they should be told for what period it was to be borrowed, how far the House could go back on such a decision, when it was expected that the report of the committee would be forthcoming, what was the ambit of the terms of reference of this committee with regard to capital expenditure, and to what extent it would consider the development of the two industries and the amount of the capital development that could be absorbed by them.

He continued with a barrage of questions, but received little satisfaction from Mr. Joynson-Hicks, who replied imperturbably that if he were to follow Mr. Hale into the complete story, he would incur the displeasure of the Chair. The answer to most of his questions were, of course, given on the second reading of the Bill. 'No,' said Mr. Bing.

Mr. H. Hynd (Lab., Accrington), although associating himself with the questions that had already been put (which had included a substantial barrage from Lieut.-Colonel Marcus Lipton, the Labour M.P. for Brixton), said that he was pleased that the borrowing powers were being increased. 'I believe, he said, 'that the limitation was only applied in the first place because hon. Members opposite were a little scared about the possible success of the nationalised gas and electricity organisations, and they were trying to put some kind of limitation upon their activities.

I think that it is a measure of their success that those limitations are now being reduced and that these bodies will have an opportunity to borrow much greater sums of money. To that extent we can regard this Bill as a compliment to the efficiency, initiative and success of these two great nationalised industries.' But he was apprehensive about the way in which the financial people in the City would manipuate these borrowings when they had to take place. 'It seems to me that there is a danger that when these nationalised bodies find themselves in the position of having to raise some additional capital, they may be forced to do it at a time when the money market declares that they have to pay more interest than they think they ought to pay, and that may result in the House having to find the money for this guarantee.' There followed a great deal of crosstalk to no very good purpose, some of it concerning the electrification of the railways and rural electrification. However, mention might be made of a pertinent remark of Mr. F. T. Willey (Lab., Sunderland North) who said that the critical question was whether the country could afford this capital construction. 'We are critical of the Government . . . . and we intend to remain vigilant about these matters in order to ensure that they are properly thought out in terms of the national development and of what the country can, and ought, to afford.'

Later Mr. Hale dealt at some length with various aspects of the Bill, his third point dealing, he said, with the question of gas. (Hon. Members: 'Hear, hear.') 'To many of us the suggestion that we have to spend £250 mill. on the further development of the gas industry comes as a surprise. Some people have suggested, quite unfairly, that the gas industry is becoming obsolete and that there will be an increasing tendency to use electricity instead. That is not true, but in the debate on Second Reading, too little attention was given to the matter and 95% of the time was devoted to the discussion of electricity.'

He hoped that the Minister would be able to say what he had in mind and whether or not this was largely a question of the replacement of old plants by new. His submission was that there were no adequate financial controls. In the circumstances they were all anxious to see help given to the boards of the two great nationalised industries which had done great work in developing these two essential sources of power. Support for the Bill should be given subject to Parliamentary control. Parliament should know how the money was to be spent, and should be informed from time to time what were the plans and the projects to be submitted. The House should have an opportunity to debate the matter in the light of the varying needs of agriculture, industry, the household, and so on, for these essential methods of power.

### *Grave Disadvantages*

Mr. Bing also returned to the fray, pointing out that one of the grave disadvantages of the Bill was that the borrowing powers were in no way co-ordinated, as the Opposition understood it, to the resources of the country as a whole. The Opposition were in favour of the principle of making money available, but they were very properly concerned as to whether the materials to be bought with the money will be available. It would be useless and a mockery to pass a Bill to enable borrowing to take place if they could not obtain the raw materials required for the capital development for which purpose the borrowing was authorised.

In more jocular mood, Mr. Hale said that he was sorry that the Parliamentary Secretary to the Ministry of Works was present as he understood that he was in charge of ancient monuments, which had to be preserved, not for industrial purposes, but other purposes. 'There are immense numbers of gasworks which might be regarded as ancient monuments showing the evils of the monopoly system. Each of them had a franchise for gas in a particular area, and consumers had to take that gas or no gas at all. That was particularly so with such a gasworks as that at Romford. It is not for men to apportion blame among the capitalists, but the present position may well be due to the failure of the City of London to provide money for the smaller gasworks unless they were prepared to surrender their independence.'

Mr. Bing also wanted to know how far were the electrical and gas industries directly in competition with the defence programme. 'Are those industries and the defence programme competing for the same materials, or are there two streams from which they draw? If we considerably increased the development of the gas and electrical industries, would we come into conflict with the defence programme?' In conclusion, he said: 'When the Minister came to the development of the gas industry, he raised a very considerable point which I hope he will develop a little further. He said that one of the reasons for expanding the gas industry was that we should use natural gas. In these circumstances, I hope that when he replies he will deal with this aspect of the matter.'

Replying to the debate, Mr. Joynson-Hicks referred to the 'rather violent, slashing and stringent criticism upon the "dictatorial powers" which were vested in the Minister' mentioned by Mr. Hale. Mr. Joynson-Hicks pointed out that 'the powers to which he refers are those which were inserted in the 1947 Act by the Government of which he was a supporter. The whole of the hon. Gentleman's virulent attack was really directed to the 1947 Act, because the only things which we are proposing to change in the 1947 Act—and this in substance is the focus of the whole of this Bill—are the two words representing the figures of the borrowing powers.'

The Bill was read the third time and passed.

### *District Heating*

The conspicuous lack of success achieved by most of the district heating schemes so far introduced has not, it seems, dulled the enthusiasm of the advocates of this type of service. For when Mr. A. M. F. Palmer (Lab., Cleveland) asked the Minister the number and location of new district heating schemes planned in conjunction with electric power developments, Mr. Lloyd explained that there were three—at Spondon, Warrington, and Stepney.

Whereupon Mr. Palmer requested that the Minister and his colleagues discuss the possibilities of providing special financial assistance beyond the resources of the electricity industry for the development of these schemes. Happily, Mr. Lloyd said 'No.' He added that he thought it much better that this matter should proceed as at present, on the basis of proper commercial negotiation.

## Lighting Ban Saves £570

A short time ago Crosby, Lancs., Council decided on the grounds of economy not to light some of its roads, but the ban has now been lifted and once more the roads are illuminated.

The ban, however, resulted in the North Western Gas Board's bill for lighting in the district, which had been substantially increased, being reduced by £570.

Councillor J. Sutch, Chairman of the Highways Committee, said that in April last the Council received a note from the Gas Board concerning the higher charges which showed a net increase of £2,228, and it was on that account that it was decided to economise by reducing some of the lighting arrangements. It was decided to turn off 1,500 lamps on certain roads other than main roads and bus routes.

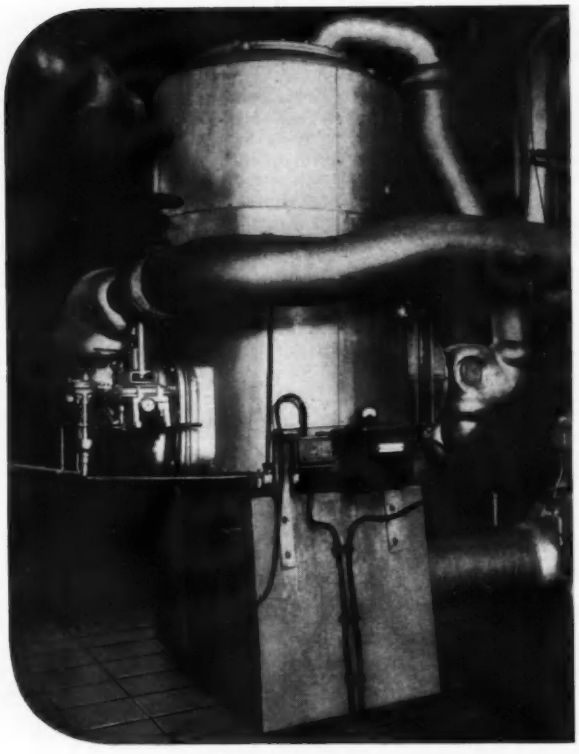
Since then letters of complaint had been received from residents, and it was decided to provide a sufficient sum for lighting to be reintroduced as from July 9. As a result of the ban there had been saving of £570, and if the lamps had been left unlighted until the end of July as was proposed the saving would have been £950.

## North Thames First Aid

In the annual first-aid competition organised by the North Thames Gas Board for teams drawn from various offices and works, the team from Fulham gasworks are proving themselves one of the most consistent in the competition. Winners of the trophy two years ago, and runners-up last year, the Fulham team were again triumphant in this year's contest from an original entry of 25 teams. Second was the team from Slough Works, and third place was filled by the Products Works, Beckton.

The team test, judged by Dr. M. M. Scott, Deputy Surgeon in Chief, St. John Ambulance Brigade, was a particularly practical one, representing a workman injured in a partially collapsed trench, with legs trapped by a heavy section of main. Members of the teams, in addition to this test, were put through their paces with two pairs tests, judged by Mr. G. E. Craft, Competition Secretary of the St. John Ambulance Association. The Fulham team will represent North Thames in the gas industry's national first-aid contest to be held later in the year.

The shield and plaques were presented to the top three teams by Mr. Michael Milne-Watson, Chairman of the Board.



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TOTTENHAM WORKS

**APPLICATIONS are invited for the position of** SECTION ENGINEER to take charge, under the supervision of the Works Engineer, of the I.V.C. Installation (6 mill. cu. ft. per diem) at Willoughby Lane Works, Tottenham. Candidates must be between the ages of 25-40 and Corporate Members of the Institution of Gas Engineers, or possessing equivalent qualifications.

The commencing salary will be within Grade A.P.T. 10 or 11 (Metropolitan) of the National Salary Scales for Gas Staffs, according to experience.

The person appointed may be required to pass a medical examination and unless already subject to a pension scheme by virtue of the Gas (Pension Rights) Regulations 1950, will be required, if eligible, to join the Board's Staff Pension Scheme within six months from taking up the appointment.

Applications, stating age, and giving full particulars of experience and qualifications, should be addressed to the Divisional Personnel Manager, Woodall House, 658, Lordship Lane, London, N.22, to arrive not later than Saturday, July 31, 1954.

### NATIONAL COAL BOARD

EAST MIDLANDS DIVISION

**APPLICATIONS are invited for post of** ASSISTANT MANAGER at a modern Coking Plant embodying gas purification, tar distillation and benzole rectification.

Salary range £650-£1,000 according to age and experience.

Full particulars of qualifications, training and experience to Administrative Officer, Carbonisation Branch, P.O. Box 16, Grassmoor Collieries, nr. Chesterfield.

Closing date July 31, 1954.

### SCOTTISH GAS BOARD

FIFE GROUP
KELTY/LOCHGELLY DISTRICT
APPOINTMENT OF DISTRICT MANAGER

**APPLICATIONS are invited from qualified Gas** Engineers for the position of DISTRICT MANAGER to the Kelty and Lochgelly Joint Districts.

Applicants should be experienced in the administration and supervision of a Gas Undertaking and have had practical experience in the control of Vertical Retorts, Horizontal Retorts and Tully Plants, general distribution practice and office routine.

Applicants should be corporate Members of the Institution of Gas Engineers or have equivalent qualifications.

The salary applicable to the post will be A.P.T. XII, Provincial 'B'—£750/875 per annum with a free house and fuel allowance.

Applicants should give full particulars of the position they presently hold stating whether same is superannuated or not.

The successful candidate may be required to pass a medical examination.

Applications, giving full particulars of age, qualifications and experience, together with three recent testimonials, or the names of three referees, to be lodged with the undersigned not later than August 14, 1954.

DAVID L. DICKSON,
Group Manager.

Gas Works,
Grange Road,
Dunfermline.

July 17, 1954.

### SCOTTISH GAS BOARD

NORTHERN DIVISION
INVERBERVIE DISTRICT

**APPLICATIONS for the position of DISTRICT** MANAGER at the above Undertaking are invited from persons with adequate practical experience in distribution and sales and in the operation and control of a small Gas Works.

The salary for the post is Intermediate Grade 5 Provincial "B" (£425-£470). A house free of rent and rates is provided, together with fuel and light free up to 400 therms per annum.

Applications, stating age, present position and experience, together with references, should be submitted to the undersigned within fifteen days of the appearance of this advertisement.

H. S. MILNE,
Divisional Controller.

50, Colton Street,
Aberdeen.
July 9, 1954.

### NORTH WESTERN GAS BOARD

NORTH CHESHIRE GROUP
YARD SUPERVISOR—
PORTWOOD WORKS, STOCKPORT

**APPLICATIONS are invited for the above** pensionable appointment at a salary within Grade A.P.T. 7 (£565-645 per annum).

The person appointed will be required to control all the day labour of the Portwood Works including some craftsmen, and applicants should have had extensive experience of these duties at a large modern gas works.

Detailed applications, giving the names of two referees, should reach the General Manager, North Western Gas Board (North Cheshire Group), Gas Works, Portwood, Stockport, within 14 days.

### NORTH WESTERN GAS BOARD

MANCHESTER GROUP
DISTRICT SERVICE OFFICER—
CITY SERVICE CENTRE

**APPLICATIONS are invited from suitably** qualified persons for the above pensionable appointment at a salary within Grade A.P.T. 10 (£690-£790 per annum).

District Service Centres serve approximately 30,000 consumers and the District Service Officer will be responsible for the administrative control and co-ordination of all aspects of consumer service within the area covered by the centre, including installation work, maintenance, showroom and enquiries, clerical work, stores control, receiving of accounts and district records.

Detailed applications, endorsed "District Service Officer," together with the names of two referees, should reach the General Manager, North Western Gas Board, Manchester Group, Town Hall, Manchester 2, within 14 days.

### SOUTH EASTERN GAS BOARD

TECHNICAL ASSISTANTS
DISTRIBUTING ENGINEER'S DEPARTMENT
METROPOLITAN DIVISION, 709, OLD KENT ROAD

**CANDIDATES must have obtained one of the** following Certificates:—

(1) Higher Grade Certificate in Gas Engineering (Supply) of the Institution of Gas Engineers;
(2) Higher National Certificate in Mechanical Engineering;

and should preferably have had five years' experience in Mains and Service-laying work.

Salary within Grade 7 or 8 (Met. Area), £595-£675 p.a. or £635-£715 p.a. according to qualifications and experience.

Applications in writing quoting reference V10/442 and giving full particulars should reach the undersigned within fourteen days.

R. J. MCCRAE,
Personnel Manager.

Katharine Street,
Croydon.


SCRAP GAS METERS WANTED!

A SPEEDY SERVICE

TOP PRICES PAID

Collection arranged from anywhere in U.K. Truck Loads to our own private siding.

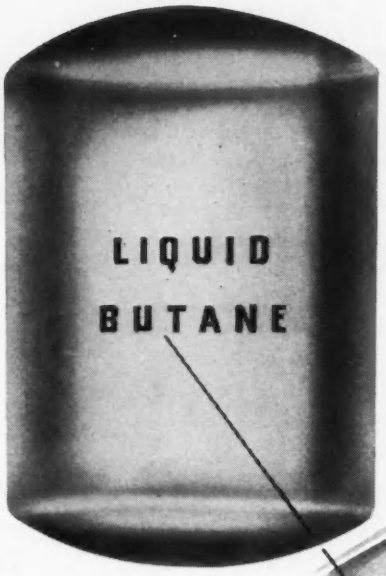
Boddington Lane, Southern Region.

TELEPHONE THOrnton Heath 6101 PRIVATE BRANCH EXCHANGE

Sell to those best suited to deal with them

Sell to MITCHAM SMELTERS LTD

ROMETAL WORKS, RED HOUSE ROAD, MITCHAM ROAD, CROYDON, SURREY

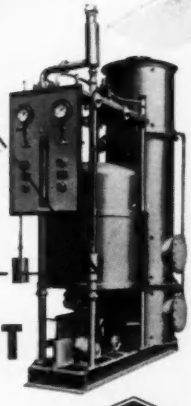



It's no problem to buy at 730,000 B.Th.U per cu.ft.

and sell at 730 B.Th.U per cu.ft

through the use of the

HOLMES-MALLET BUTANE/AIR PLANT



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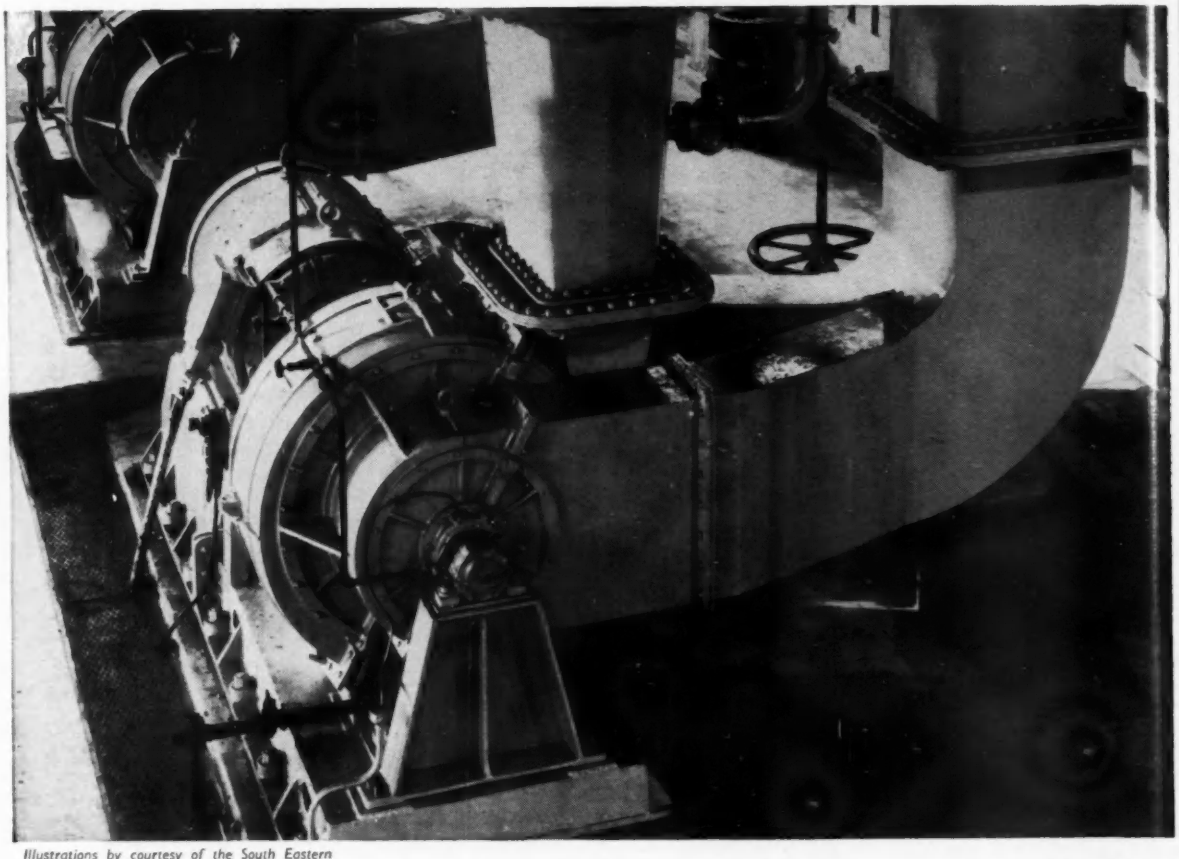
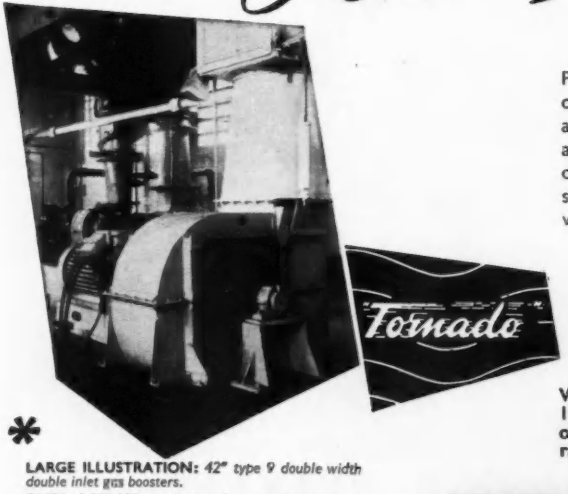


*Illustrations by courtesy of the South Eastern Gas Board and Messrs. Humphreys & Glasgow Ltd.*

# Gas Boosting *




Part of an installation at the East Greenwich Gas Works for the supply of South London's gas are the "TORNADO" gas boosters illustrated above. Each is capable of shifting over a million cubic feet of producer gas an hour, and each was supplied with cast iron gas tight casings with detachable segments for easy servicing, stainless steel impeller and shaft, self aligning roller bearings and flexible couplings. One of the boosters was arranged for motor drive and the other for steam turbine.

*

**LARGE ILLUSTRATION:** *42" type 9 double width double inlet gas boosters.*

*DUTY: 1,095,000 cu. ft. per hour producer gas at 104°F. saturated, giving 28" w.g. differential over inlet and outlet connections taking 138 H.P.*

**SMALL ILLUSTRATION:** *40" type 15 air blowers.*

| *DUTY:* | *Closed outlet* | *Delivery* |
|---|---|---|
| *Air quantity* | *nil* | *12830 c.f.m.* |
| *Speed r.p.m.* | *1480* | *1475* |
| *Static pressure* | *15.8" w.g.* | *13" w.g.* |
| *Power absorbed* | *13 B.H.P.* | *39 B.H.P.* |

**FAN ENGINEERING AND INDUSTRIAL GAS EQUIPMENT**

**We are manufacturing gas boosters which cover a range of from 5,000 to 1,500,000 cubic feet per hour, and if you are concerned with the movement of air or gas, ask us to send you Publication No. 5/7, a survey of the standard range of "TORNADO" high pressure blowing and exhausting fans.**

Keith Blackman LIMITED

MILL MEAD ROAD, TOTTENHAM, LONDON, N.17

'Phone: Tottenham 4522 (twelve lines). 'Grams: "Keithblac, Norphone, London."

434

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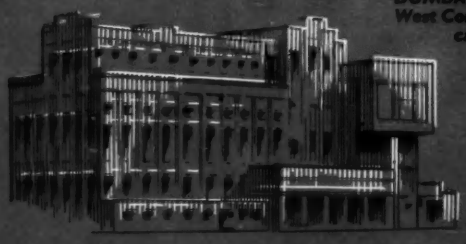
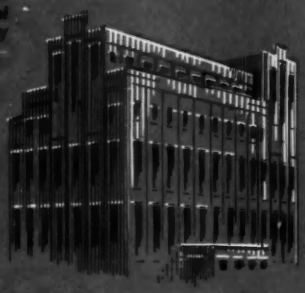


DUMBARTON. Installation of 64 50-inch Glover-West Continuous Vertical Retorts. Nominal daily capacity of 5,760,000 cu. ft of gas.

STOCKTON-ON-TEES. 64 50-inch retorts. Nominal daily capacity 5,760,000 cu. ft.

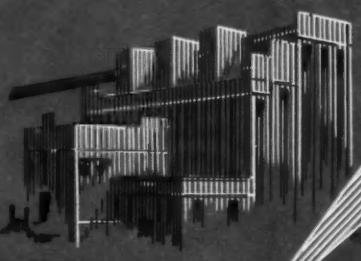


North

East

South

In common with Glover-West plants throughout the country, these four major installations, recently put into operation, incorporate the "Balanced Heated" setting, a feature of the Glover-West system which has substantially reduced the amount of fuel required for the carbonization process.



SALFORD. Extension of 24 50-inch retorts to existing 48 retorts. Total daily capacity 6,480,000 cu. ft.

BROMLEY-BY-BOW. 120 40-inch retorts. Nominal daily capacity 9,000,000 cu. ft.

WEST

'BALANCED HEATING' saves fuel

WEST'S GAS IMPROVEMENT CO. LTD
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TELEPHONE: COLLYHURST 2961 TELEGRAMS: STOKER, MANCHESTER

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Wonders of the World

## The TEMPLE of DIANA

A marble temple at Ephesus, designed by Ctesiphon and erected by the cities of Ionia during the fourth century B.C., in honour of the goddess.

The temple is believed to have been over 400 ft. in length and had over one hundred and twenty richly decorated pillars sixty feet high.

The Wonders of the Modern World will be chronicled by posterity and will reveal the indispensable contribution of steel tubes to these achievements.

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